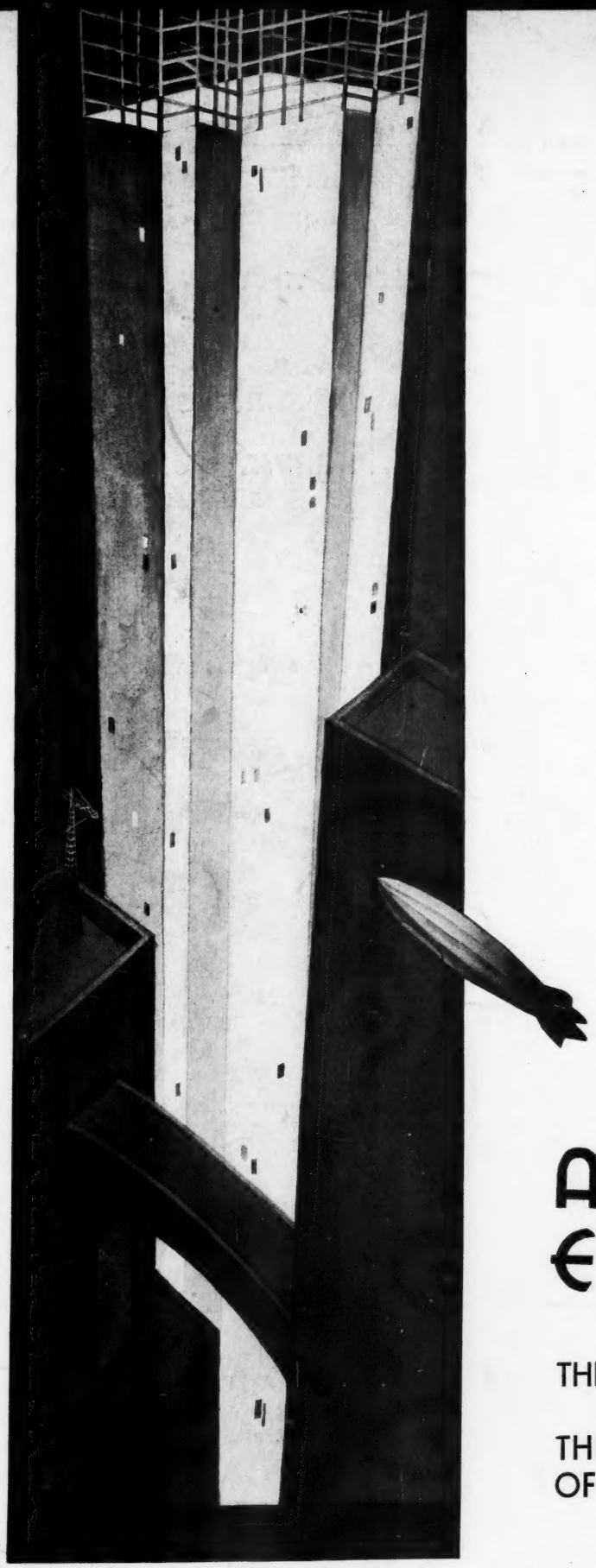


The

AMERICAN ENGINEER

OFFICIAL PUBLICATION
THE NEW YORK STATE SOCIETY
AND
THE NEW JERSEY ASSOCIATION
OF PROFESSIONAL ENGINEERS

OCTOBER ++ 1932

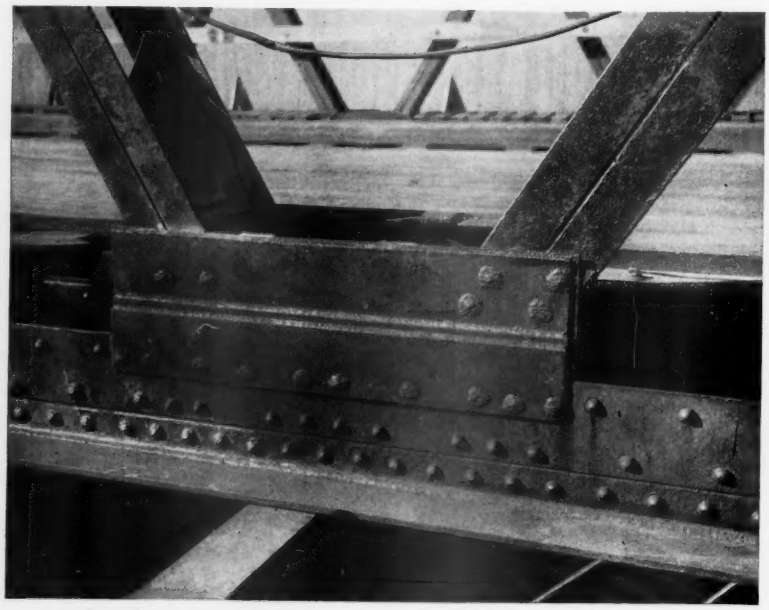
North Bergen Turnpike, North Bergen, N. J.

Economical Methods of Reinforcing Highway Bridges

This Highway Bridge over a trunk railroad was recently repaired and reinforced by arc welding, including the use of our patented methods. Traffic was maintained on one roadway throughout the work.

The capacity of the bridge was increased from one nine ton truck to twenty ton trucks.

Patented Arc Welding Methods



The Leake and Nelson Company

INCORPORATED

CONSULTING AND CONTRACTING WELDING SPECIALISTS

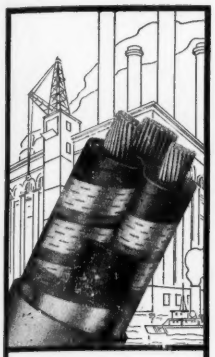
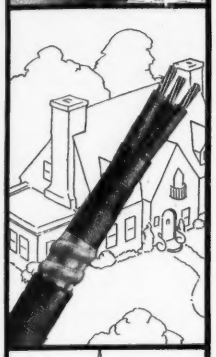
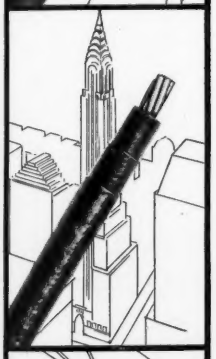
Specializing in Bridge Repairs

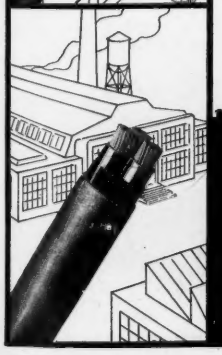
WORKS AND GENERAL OFFICE:
203 ASH STREET
BRIDGEPORT, CONN.
Tel. 4-3153, 3154, 3155

C. H. SORENSEN
Member
N. Y. State Society
Professional Engineers

NEW YORK OFFICE:
GRAND CENTRAL TERMINAL
ROOM 1845
Tel. Murray Hill 2-7187

F. B. DOOLITTLE
Member
N. Y. State Society
Professional Engineers



GENERAL CABLE

BARE and INSULATED CONDUCTORS

FOR

TRANSMISSION DISTRIBUTION

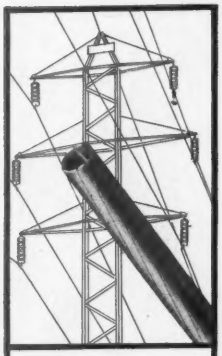
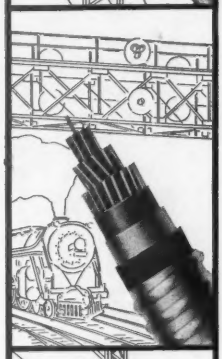
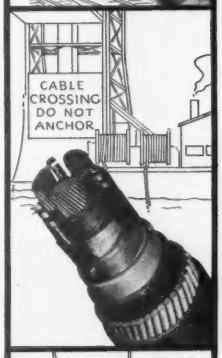
Paper • Rubber
Varnished Cambric

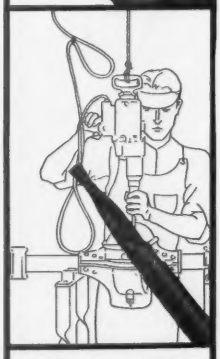
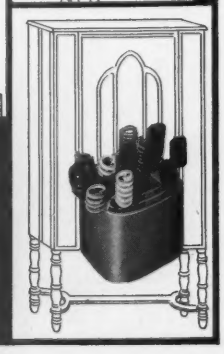
•

ALL SIZES ALL TYPES

•

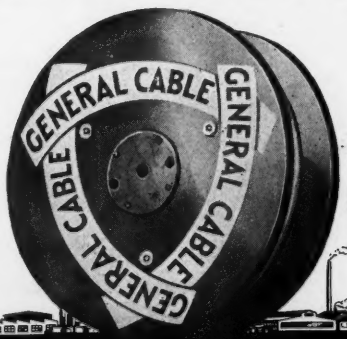
Service up to
220,000 volts

A STANDARD OF QUALITY FOR HALF A CENTURY

1882 1932



GENERAL CABLE CORPORATION

420 LEXINGTON AVENUE NEW YORK CITY
OFFICES IN PRINCIPAL CITIES

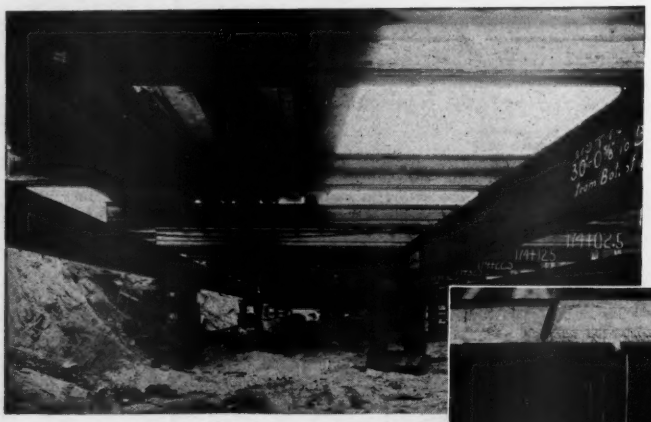
32 MILES OF ROEBLING ROPE

In building the great Salt Springs Dam, on the north fork of the Mokelumne in California, 32 miles of Roebling Wire Rope were used on shovels, cranes, derricks and cableways.

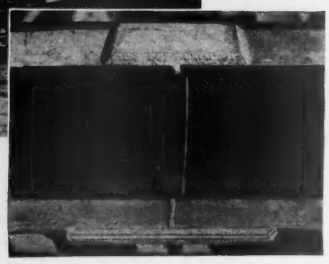
All work of designing, engineering and constructing the Salt Springs Dam was done by the Architectural and Engineering Department of the Pacific Gas & Electric Co.

JOHN A. ROEBLING'S SONS COMPANY

TRENTON, N. J.



TEMPORARY DECKING OVER SUBWAY BEFORE PRINCIPAL EXCAVATION



LONGITUDINAL BEAMS OF CARNEGIE 30 INCH SECTIONS

SPLICED

With Motor Driven

ARC WELDERS

DETAIL:

WELDED COVER PLATES AND SPLICE

SOUND WELDING, Inc.

ENGINEERING and CONTRACTING

Phone LUdlow 4-7475-7476 903-05 EAST 134th ST., NEW YORK Day and Night Service

ASME ENGINEERING SOUND WELDING CONTRACTING 1931

THE AMERICAN ENGINEER

OFFICIAL PUBLICATION

OF

THE NEW YORK STATE SOCIETY AND THE NEW JERSEY ASSOCIATION OF PROFESSIONAL ENGINEERS

12 FIRST STREET, SAUGERTIES, N. Y.

and

POSTUM BUILDING, 250 PARK AVENUE, NEW YORK CITY

Editorial and Executive Offices, Postum Building, 250 Park Avenue, New York, N. Y.

TELEPHONE: PLaza 3-8031

J. C. VIEWEG, Publisher

ALL RIGHTS RESERVED

VOLUME 2 OCTOBER, 1932 NUMBER 10

CONTENTS

Personnel of the Executive Boards.....Page 2

Col. John R. Slattery Dies..... 3

Engineer's Council for Professional Development..... 4

Business in Government..... 5

Annual Convention..... 6

Protection of the Term "Engineer"..... 7
By DR. D. B. STEINMAN

Requirements for Engineering Schools..... 8

The License Law Since 1920.....9
By ROY G. FINCH, Continued from September Issue

Public Works and the Reconstruction Finance Corporation 10
By GERALD W. KNIGHT

General News..... 11

Another New Chapter.....11

15-Point Program for Engineering Profession.....11
By DR. D. B. STEINMAN

Sidelights of the N. C. S. B. E. E. Convention.....11

Professional Registry.....VII

Arthur V. Sheridan, Editor

Yearly Subscription: United States, Insular Possessions, Cuba, Canada, Central America, South America, and Spain, $2.00; Foreign, $3.00; Single Copy, 20c.

Entered as second-class matter July 1, 1931, at the post office at Saugerties, New York, under the Act of March 3, 1879.

PERSONNEL OF THE EXECUTIVE BOARD OF THE NEW YORK STATE SOCIETY

1931-1932

Vice-President
ARNOLD G. CHAPMAN
74 Chapel St., Albany, N. Y.

President
DAVID B. STEINMAN
117 Liberty St., New York, N. Y.
Tel.: BArclay 7-2616

Second Vice-President
HARRY A. KIDDER
600 W. 59th St., New York, N. Y.
Tel.: COlumbus 5-4203

Financial Secretary
ERNEST F. FOX, Jr.
Borough Hall, Bronx
Tel.: TRemont 3-2680

Treasurer
PATRICK M. CORRY
16 E. 47th St., New York, N. Y.
Tel.: WIckersham 2-0900

DIRECTORS

ARTHUR K. OHMES, 101 Park Ave., New York, N. Y. AShland 4-8540
FRED H. ZURMUHLEN, Jr., 205 E. 42nd St., New York, N. Y. MUrray Hill 4-7329
JOHN M. WEISS, 50 E. 41st St., New York, N. Y. CAledonia 5-2210
HAROLD W. WATT, 428 S. 6th Ave., Mt. Vernon, N. Y. OAkwood 0679
ANDREW K. JOHNSON, 68 Hunterspoint Ave., L. I. City STillwell 4-5400
HAROLD G. RICE, Capitol Theatre Bldg., Rome, N. Y.
CHARLES W. MARVIN, 52 City Hall, Rochester, N. Y.
FREDERIC R. HARRIS, 10 E. 44th St., New York, N. Y. VAnderbilt 3-5151
HOMER G. BALCOM, 10 E. 47th St., New York, N. Y. WIckersham 2-7653
CHARLES R. WATERS, 546 Delaware Ave., Buffalo, N. Y.
CHARLES H. SELLS, 60 Rebecca Ave., Pleasantville, N. Y.
FRANCIS X. BODE, 29 West Erie St., Albany, N. Y.
ERICH HAUSMANN, Polytechnic Institute, Brooklyn, N. Y. TRiangle 5-6920
JENS L. HOLST, Rm. 825, 420 Lexington Ave., New York, N. Y. MOhawk 4-4267
FREDERICK WARD, 287 East 18th St., Brooklyn, N. Y. TRiangle 5-8680
ROBERT J. BARTLEY, 98 Main St., Bay Shore, N. Y.
THOMAS C. DESMOND, 56 Second St., Newburgh, N. Y.
WILLIAM T. FIELD, 906 State St., Watertown, N. Y.
IRVING HOCHSTADTER, 227 Front St., New York, N. Y. BEekman 3-5260
CHARLES S. KEATING, 1010 State Tower Bldg., Syracuse, N. Y.
EDGAR A. McKENNA, 8904 247th St., Queens Village, N. Y.
JOHN C. RIEDEL, 505 Macon St., Brooklyn, N. Y. TRiangle 5-7100
RAPHAEL J. SMYTH, Borough Hall, Bronx, N. Y. TRemont 3-2680
RALPH H. McKEE, Dept. of Chemical Engineering, Columbia University, New York, N. Y. UNiversity 4-3200

PAST PRESIDENTS

ARTHUR V. SHERIDAN, Borough Hall, Bronx TRemont 3-2680
JAMES M. WELSCH, 43 Pennsylvania Ave., Crestwood, Yonkers, N. Y. Tuckahoe 1816

EXECUTIVE OFFICES: GRAND CENTRAL TERMINAL BUILDING.

PERSONNEL OF THE EXECUTIVE BOARD OF THE NEW JERSEY ASSOCIATION

OFFICERS

First Vice-President
MORRIS R. SHERRERD
City Hall, Newark, N. J.

President
ARTHUR NOACK
51 Court St., Hackensack, N. J.

Second Vice-President
O. H. AMMANN
Boonton, N. J.

Treasurer
TREVOR J. POWELL
P. O. Box 212, Elizabeth, N. J.

Secretary
HUGH A. KELLY
921 Bergen Ave., Jersey City, N. J.

TRUSTEES

O. H. AMMANN, Boonton, N. J.
ROBERT O. BENTLEY, 72 River St., Newark, N. J.
JOHN F. BRALY, Spring Lake, N. J.
GERALD W. KNIGHT, 605 Broad St., Newark, N. J.
W. DeW. VOSBURY, 509 Cooper St., Camden, N. J.
RUSSELL S. WISE, 199 Washington Place, Passaic, N. J.
HARRY T. GREENE, Toms River, N. J.
PETER F. DALY, 739 Hudson Place, North Bergen, N. J.
PAUL P. RICE, Accho Building, Phillipsburg, N. J.
JULES VERNER, City Hall, Linden, N. J.
JACOB L. BAUER, 120 Broad St., Elizabeth, N. J.
ARTHUR P. ACKERMAN, Hackensack Trust Building, Hackensack, N. J.

OFFICES OF THE SECRETARY: TRUST COMPANY OF NEW JERSEY BUILDING, JERSEY CITY, N. J.

THE AMERICAN ENGINEER

Published Monthly for
THE NEW YORK STATE SOCIETY AND THE NEW JERSEY
ASSOCIATION OF PROFESSIONAL ENGINEERS

12 First Street, Saugerties, N. Y. and Postum Building, 250 Park Avenue, New York, N. Y.

NUMBER 10 OCTOBER, 1932

COL. JOHN R. SLATTERY DIES

Another Engineer Martyr To His Task

COLONEL John R. Slattery, Deputy Chief Engineer of the Board of Transportation and General Manager of the new Independent Rapid Transit System of the City of New York, died at his home in Queens, L. I., on September 23rd.

Possessed of a long and distinguished career, both as a military and a civil engineer, his passing recalls the death of Clifford Holland, builder of the Tunnel which bears his name. Both of these brilliant men gave their lives to the consummation of a work that was of enduring benefit to mankind. At no time during their lifetime did these men enjoy the recognition, esteem and emoluments that rightfully were theirs. Movie stars, athletes, politicians and countless others whose contributions to civilization could be carried in a thimble are daily publicized and extolled to the heavens, whilst the genius of engineers, whose incomes would be scorned by salesmen and radio crooners, passes unrecognized and unrequited.

It was with good reason that the New York World-Telegram of September 9th, 1932, published the following editorial:

Tonight the New Subway

"No high hats or brass bands will be on parade tonight at the opening of the new subway. A very fitting thing. There will be no pomp and ceremony, no flourishes and ruffles for exclusive committees of highfaluting officials, politicians and citizens who had no real hand in creating this the world's most modern rapid transit system.

"It has always been an ironic thing that when any great public work was finished the people who actually paid for it—the general public—and the people who actually built it—the engineers and architects, the artisans and mechanics—had to eat at second table. At the first sitting, in the limelight and flashlights, sat the political officeholders and paunchy politicians, the representatives of this organization and that association—individuals in whose eyes craftsmanship and workmanship and toil too often were mainly things to be bought and paid for like cement or bricks.

"As a matter of fact, there won't be any 'first train' at the opening of the new subway at midnight tonight. There will be twenty-eight first trains, since there are twenty-eight stations.

"These twenty-eight 'first trains' will be opened to everyone without distinction who has a nickel to put in a turnstile and cares to be on hand soon enough to be one of those who may or may not fill the first train to capacity.

"To these thousands who, after midnight will descend into the stations and pass through the turnstiles and into the twenty-eight first trains, we would say: Give a thought to the men who, out of the toil of brain and hand, planned and delved and created this great achievement of engineering."

It was on the occasion of the opening of this subway route that Col. Slattery had an attack of coronary thrombosis, which was followed by a second one on September 18th. The statement of the physician who attended him needs no elaboration:

"Colonel Slattery died in his sleep at 4:45 A. M. of a sudden heart attack in the nature of angina pectoris. He had been confined to his home and bed for a week, owing to a physical collapse incidental to overwork, and particularly to strain received at the opening of the new subway, when he had physically and mentally overtaxed himself while attempting to restrain the crowds at the turnstiles of the Forty-second Street station."

Mayor McKee of New York paid the following tribute:

"The death of Colonel Slattery is an irreparable loss to the city. He had a knowledge of our transit needs surpassed by no one. He was of invaluable assistance to Chairman Delaney and the members of the Board of Transportation in the planning and construction of the great system of rapid transit that New York City now enjoys. I am informed that his death was brought about because of his determination to stick to the job, despite his doctor's orders. He was a martyr to public service."

From the West Side Association of Commerce came the following:

"The heartfelt sympathy of our association goes to the family of Colonel Slattery, and also to the City of New York, which has lost such a devoted

(Continued on Page 9)

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT

Report To The N. C. S. B. E. E.

AT the recent Convention of the National Council of State Boards of Engineering Examiners the following program was presented by President Steinman.

To the endeavors of Thos. H. Normile, a Director in Bronx County Chapter, who presented a resolution before the American Society of Mechanical Engineers in 1928, the activity which finally resulted in this program is primarily due.

Address by D. B. Steinman

The Committee on the Economic Status of the Engineer, appointed by the A. S. M. E. in 1928, submitted its final report in November, 1931. This epoch-making report stressed the thought that the prime requisite for improving the status of the Profession is the establishment of a clearly recognizable line of demarcation between the Engineer and the non-engineer. A program of selection, guidance, training, and certification, covering the entire period from high-chool to admission into the Profession, was suggested, in order that new men should enter with a consciousness of the Engineering Profession as a corporate thing.

Actuated by this report, the A. S. M. E. (early in 1932) sent out a call to the other national engineering societies to join with it in a "Conference on Certification into the Engineering Profession."

At the same time, a parallel movement was being launched by the N. C. S. B. E. E., inviting the other national engineering societies to cooperate in the establishment of a "National Bureau of Engineering Registration." This had been authorized by the N. C. S. B. E. E. at the Detroit meeting, October 2, 1931, with a view to creating a central bureau for certification into the Engineering Profession. The plan was to provide unified certification: (a) for registration by the State Boards, (b) for admission to membership in the engineering societies, and (c) for the conferring of the professional degree by the engineering schools.

Upon learning of this parallel program, the Founder Societies promptly invited the N. C. S. B. E. E. to join in the "Conference on Certification into the Engineering Profession." Col. Hugh A. Kelly, T. Keith Legaré, D. B. Steinman, and Dean P. H. Daggett were appointed to represent the N. C. S. B. E. E. The other participants were the A. S. C. E., A. S. M. E., A. I. E. E., A. I. M. E., A. I. Ch. E., and the S. P. E. E. C. H. F. Hirshfeld (A. S. M. E.) was named Chairman of the Conference.

On February 3, 1932, the Conference appointed a Planning Committee, under the Chairmanship of General R. I. Rees (S. P. E. E.). D. B. Steinman was asked to represent the N. C. S. B. E. E. on this Committee.

The Planning Committee met on March 14, 1932, at the Engineering Societies Building, New York. Present were General Robert I. Rees, representing S. P. E. E., Chairman; J. Vipond Davis, representing A. S. C. E.; Dr. W. E. Wickenden, representing A. S. M. E.; H. A. Kidder, representing A. I. E. E.; Dr. John A. Mathews, representing A. I. M. E.; F. W. Willard, representing A. I. Ch. E.; D. B. Steinman, representing N. C. S. B. E. E.; C. F. Hirshfeld, Chairman of the Conference on Certification; George T. Seabury, Secretary A. S. C. E.; Dr. Calvin W. Rice, Secretary A. S. M. E.; H. H. Henline, Assistant Secretary A. I. E. E.; A. B. Parsons, Secretary A. I. M. E.; E. H. Robie, Assistant Secretary A. I. M. E.; and C. E. Davies, Executive Secretary A. S. M. E., Secretary of the Conference. At this meeting a comprehensive program was drafted, entitled "A Plan for Joint Action in the Development of the Engineer."

On April 14, 1932, the Conference on Certification into the Engineering Profession met at the Engineering Societies Building to act on the report of the Planning Committee. Twenty-two members, including the delegates and secretaries of the seven participating organizations, attended this meeting, under the Chairmanship of C. F. Hirshfeld (A. S. M. E.). General Rees presented the Plan drafted by the Planning Committee, together with a memorandum prepared to aid members of the Conference in presenting the Plan to their respective organizations for approval. The report, with minor modifications, was adopted by the Conference, and it was voted to submit it to the cooperating bodies for ratification. It was further proposed to put the Plan into effect, by calling the first meeting of the proposed "Engineers Council for Professional Development," when five of the constituent bodies have ratified the proposal.

To date, five of the participating organizations have formally approved the Plan, thereby making it operative. These are the A. S. C. E., A. S. M. E., A. I. E. E., A. I. Ch. E., and S. P. E. E. Accordingly the organization meeting of the "Engineers' Council for Professional Development" has been called for October 3, 1932. Ratification by the N. C. S. B. E. E. has been delayed, awaiting presentation of the Plan and formal approval at the annual meeting on September 29, 1932.

A Plan for Joint Action in the Development of the Engineer:

The Plan proposed by the "Conference on Certification into the Profession" and already formally ratified by five of the seven participating organiza-

(Continued on Page 14)

BUSINESS IN GOVERNMENT

Are Its Methods Conducive To The Common Good?

IN the confusion that accompanies a changing society there invariably occurs loud outcries concerning corruption and dishonesty in public office. Governmental agencies are held up as the cause of all social ills, and the body politic seemingly exists solely for the benefit of conniving politicians.

Contrast between the conduct of government and of private enterprise prompts the suggestion that dishonest, wasteful office holders should be replaced by the efficient and successful man of big business. The credulity of mankind is at times remarkable. It is strange how people of natural discernment and developed faculties will succumb to contentions which spring from untenable premises. One wonders that reflection and personal observation does not indicate that human conduct, whether in public office or private business, is equally influenced by surrounding conditions. No one has ever denied the truth of the expression that man can resist anything except temptation.

The abuse of authority, the misappropriation of monies, the grasping after advantage, the total disregard of moral obligations and the seeking, granting and acceptance of improper gratuities find their highest development, not in government, but in private enterprise. The failures and embezzlements encountered in a review of the activities and conduct of business are just as indicative of dishonesty and extravagance as is a too high tax rate. Is there any moral difference between the actions of a governmental agency which misappropriates or misuses the money of taxpayers for personal advantage and those of a corporation directorate which votes itself bonuses and authorizes or approves luxurious quarters, private cars, solariums, marble baths, personal services and endless perquisites paid for out of money belonging to stockholders?

It is futile to blame politicians for the selfishness and weakness of mankind. What transpires in public office is but the mirrored reflection of what prevails more or less generally in the society of the moment. Public officials are neither more honest nor more corrupt than the rest of men. The moral turpitude of the politically dishonest is no more reprehensible than that of the commercially or professionally dishonest, and when a nation bebecomes permeated with the idea that the goal of life is the accumulation of enormous resources, regardless of how obtained or at what expense to the great masses of mankind, the hope for honesty and idealism in the conduct of public office is about as futile as locating the needle in the haystack. The corporation officials who in the press, by radio and other means criticize and denounce public servants unhesitatingly approve of lobbying and other means of purchasing advantages from the very persons whom they include in their condemnation. The same sources that demand business in government insist that the government stay out of business. They condemn and denounce governmental agencies for engaging in activities that compete with private enterprise. Then, without any compunction whatever, they proceed to force out of business every competitor. Is opportunity for the individual any less under a governmental system than under one wherein the control of all the oil or steel in a nation is concentrated in one fountainhead? Is a corporation admittedly engaged in business for profit more solicitous of its employees or the public welfare, or more human and honest in the conduct of its affairs and in the use of stockholders' money, than a governmental agency?

Surely none can be so blind as to fail to recognize the symptoms of a malignant social disorder, when every precept of the ten commandments is subordinated to the accomplishment of business ventures. How inconsistent for college presidents to advocate lower taxes by reducing salaries of public employees whilst maintaining tax exempt stadii and large tracts of unoccupied institutional property. The very ministers of the gospel who preach for honesty and frugality in government unhesitatingly acquire and dispose of tax exempt property with never a thought as to the moral considerations of such transactions.

Good business is recognized as a laudable endeavor. But what does good business consist of? Acquiring or disposing of material possessions with the Golden Rule as the guiding prinicple? When such procedure becomes the rule and not the rare exception the millennium will surely have arrived. So long as the critics of political dishonesty remain the protagonists of the unethical and unfair methods of private business there is little reason to hope for a metamorphosis in the conduct of public affairs. The selfishness of great financial interests is the basic cause for the danger that today threatens the capitalistic system. Fundamentally more useful to, and desirable for, mankind as a whole than the various substitute isms and ologies that would displace it, capitalism is today showing signs of debilitation and its chief beneficiaries are the principal influences tending to bring about this decline. These interests seem blind to the fact that human nature is so constituted that logic is no substitute for food and shelter, and that arguments will not remove the primitive demands of human existence. There is today no more striking example of this blindness than has been manifested in connection with the Veterans' Adjusted Compensation or Bonus as it is termed.

A year ago the American Legion opposed by a vote of two to one the immediate payment of the said bonus. Last month it voted ten to one in favor of such payment. Why? The answer is simple. The opposition of those possessed of enormous wealth has left a most unfavorable

(Continued on Page 13)

ANNUAL CONVENTION

State Boards of Engineering Examiners, Sept. 29, 30, Oct. 1

THE 13th Annual Convention of the National Council of State Boards of Engineering Examiners has come and gone, leaving in its wake the good will of engineers from Florida, California, Oregon, Iowa and various other parts of the country.

If one may judge from the expression of opinion offered, New York and its neighbors, New Jersey and Connecticut, made a deep impression upon the visiting members of the National Council.

The business sessions of the Convention were admirably conducted and an opportunity to participate was offered to every one present. Practically every engineering society in the Metropolitan area was represented and the program of the Council was commended on all sides.

Of especial interest was the outline of the report of President Steinman on the "Engineers' Council for Professional Development," which appears elsewhere in this issue. No more comprehensive and worthwhile program for the development of the engineer as a cultured professional man has ever been proposed and the Engineers' Council, comprising the Founder Societies, the Examining Boards and the Society for the Promotion of Engineering Education has done a splendid work.

The National Council of State Boards is admirably constituted to effect the proposals of the professional development program and the profession as a whole should give thought to the advisability of having at all times men of vision, of capacity and of broadminded viewpoint on the Licensing Boards throughout the country.

The dinner on Thursday evening, September 29th, while not so well attended as had been hoped for, was none the less a distinctly successful occasion. The addresses of Senator Thos. C. Desmond, Julius Henry Cohen, President Frederick C. Robinson of the College of the City of New York, and the retiring President of the Council Dr. Steinman, were scintillating. Seldom does one have the pleasure of hearing four forceful, erudite, well delivered talks in one evening. Even the press representatives confided to your Editor that they came reluctantly to cover the occasion and remained spellbound at the ability of the speakers.

The pièce de resistance of the evening was the presentation of a sterling silver scroll bearing the names of: the National Council of State Boards of Engineering Examiners; the American Society of Civil Engineers, Metropolitan Section; the American Society of Mechanical Engineers, Metropolitan Section; the American Association of Engineers; the New York State Society of Professional Engineers; the New Jersey Association of Professional Engineers; the Connecticut Conference of Professional Engineers and Architects; the Association of Engineers of New York; the Municipal Engineers of New York; the Brooklyn Engineers' Club, and, the Rochester Engineering Society. In a most appropriate address of commendation to the National Council and an expression of heartfelt appreciation to its retiring presiding officer Professor John C. Reidel, speaking for an honorary committee, composed of: Dr. O. H. Ammann, V. T. Boughton, J. H. Bauer, R. B. Purdy, Dr. J. A. L. Waddell, J. H. Griffin, Colonel Robert Starr Allyn, Admiral F. R. Harris, H. A. Kidder, J. L. Lawrence, A Noack, W. S. Conlon, E. I. Rudd, L. S. Stiles, J. C. Riedel, R. W. Gilkey, A. W. Tidd, J. M. Lonergan, L. G. Nieman, P. P. Farley, G. P. Hevenor, and representing all the above noted participating and contributing societies, presented to the wholly unsuspecting President Steinman the beautifully engraved and mounted scroll which contained in addition to the names of the various societies, the following inscription:

In recognition of the services rendered to his calling, by one whose ability, zeal and unselfishness have contributed so greatly to the advancing status of the profession of engineering, this scroll is presented to DAVID B. STEINMAN.

With tears welling from his eyes and with quavering voice Dr. Steinman accepted the testimonial and in doing so pledged himself to continued endeavors in behalf of the calling which he so dearly loves. The heart of every person in the audience was his and the profession of engineering, particularly the New York State Society, is proud of her distinguished and unselfish protagonist.

Arthur V. Sheridan presided at the dinner and delivered the opening address.

THE AMERICAN ENGINEER congratulates the National Council on its accomplishments and compliments its Secretary-Treasurer, Mr. T. Keith Legare, for his splendid work in arranging the details of the business sessions. To the Committee on Arrangements, Mr. I. W. Conway, Mr. George Dorfman, Mr. George B. Meeteer, Mr. Roy C. Cram, Mr. Ray Potter, Mr. Wm. J. Shea, Mr. Joseph F. Lamb, and Mr. F. A. Rossell, the appreciation of the Examining Boards has been expressed by the Council.

The New York State Society and the Chairman of the Committee on Arrangements are grateful to the various engineering societies and to the several chapters which participated for their co-operation and assistance. To the generosity and spirit of Queens Chapter the success of the occasion is in a large measure due. Together with New York and Westchester Chapters it made possible the selection of a testimonial worthy of him who has given so much for the Society and for the profession.

The Convention closed Saturday, October 1st, with a trip up the Hudson and down the lower bay on board the steamer Macon furnished through the courtesy of one of the best friends and most enthusiastic supporters that the profession has—the Honorable Albert Goldman, Commissioner of Plant and Structures of the City of New York.

Upon return to the city the visitors departed for their several homes taking with them kind remembrances of their first convention in New York and leaving behind them the hope that one day ere long New York will again play host to such a distinguished and appreciative group.

"PROTECTION OF THE TERM ENGINEER"

3. A Program of Public Education and Professional Action

By D. B. STEINMAN,
President, N. Y. State Society of Professional Engineers
Past President, National Council of State Boards of Engineering Examiners
Past President, American Association of Engineers

THIS is the third of a series of articles planned to enlist engineers and engineering organizations throughout the country in a nation-wide campaign to stop the abuse and misappropriation of our professional designation.

If the title "Engineer" is worth anything, it is worth protecting. All of our effort to give significance and prestige to the term "Engineer" is wasted if any quack, imposter, illiterate, or incompetent may freely assume the title. Our program to establish a clearly recognizable line of demarcation between the Engineer and the non-engineer is frustrated if every non-engineer may arbitrarily call himself an "Engineer." Our effort to make Engineers stand out in the public mind as members of a learned profession of high qualifications is nullified if those without any professional qualifications may freely style themselves "Engineers."

The foundation for a restrictive campaign has been laid in the Engineers' Registration Laws of the various States. Most of these statutes contain some provision to curb the indiscriminate appropriation of our professional title. Where such statutory provision is found to be of insufficient scope or clarity, the efforts of Engineers and their organizations should be directed toward securing the enactment of the necessary amendments.

These legislative measures, however, will fall short of their goal unless they are supplemented by an organized campaign on the part of the profession to make them effective; and a most essential element of such campaign is a comprehensive program of public education. The psychological factor is as important as the legal. We have learned that a law cannot be enforced without the backing of public sentiment, and we therefore realize the necessity of building up public understanding and appreciation of our program.

We have encountered obstacles in the past. We have come before courts that had never heard that there was a statute restricting the practice of engineering. We have met legislators who did not know what a "professional engineer" is; they thought it was only another addition to the large variety of "engineers." We have encountered enforcement officials who thought we were trying to "copyright the dictionary" when we objected to unqualified men advertising as "Electrical Engineers" or "Consulting Engineers." We have met countless violators of the law who were surprised to learn that such law was in existence.

The other licensed professions have passed through the same difficulties and have overcome them. No one any longer challenges the right of those professions to resist encroachment of practice and to prosecute those who take their name in vain.

County medical societies in various parts of the country have used generous space in newspapers for articles and advertisements to educate the public to distinguish between licensed physicians and quacks. Anyone newly listed as a "Dr." in a directory will receive a prompt courteous communication from the local medical society requesting an explanation. Each year, in New York State, thousands of reported violations of the Medical Practice Act are investigated and corrected, with or without court action.

Similarly the other licensed professions have intensive law enforcement programs, and give these activities the widest newspaper publicity.

The Engineering Profession is the last to fall into line. As the least popularly known or understood of the learned professions, and as the latest to secure restrictive legislation, it stands in the greatest need of a campaign to enlist public appreciation and cooperation.

We must undertake a comprehensive program of publicity to let the public know what an Engineer is, that a license is required to practice, that high qualifications are a prerequisite, how licensing protects the public, that unlicensed use of our professional designation is unlawful, how the term "Engineer" has been abused and misappropriated, how offenders have been stopped, and how the public can cooperate. Properly written copy will enlist the good will and support of the public, and will frighten violators from further trespass.

Newspapers will welcome the copy if it is informative and interesting, and many of them will be glad to print editorials on the subject. The fact that the profession is finally launching a campaign to stop the many abuses of the designation "Engineer" will be news, and the story of each successful prosecution or court decision will command further newsprint space.

Through such publicity campaign, the desired psychological background can be created. The publicity copy should be carefully planned to advance the following objectives: Sympathetic understanding of our program to be created; objectionable hybrid designations to be ridiculed out of existence; offenders ignorant of the law to be warned; intentional violators to be frightened; public discrimination to be educated; enforcement officials to be enlisted; and respect for the profession to be strengthened.

Another important element of the campaign is the direct checking up of violations. Local units of professional organizations should check

(Continued on Page 9)

REQUIREMENTS FOR ENGINEERING SCHOOLS

Recommendations of N. C. S. B. of E. E.

A report of interest to engineers generally was that on "Accrediting Engineering Schools" which was presented at the recent Convention of the National Council of State Boards of Engineering Examiners by Dean Parker H. Daggett in behalf of a committee composed of Prof. George J. Keller, Dr. D. B. Steinman and himself.

NATIONAL COUNCIL OF STATE BOARDS OF ENGINEERING EXAMINERS

Report of the Committee on Accredited Schools

At the last meeting of the Council, the Committee on Accredited Schools was directed to proceed with the task of setting up "an improved set of standards for accredited schools, and formulating a definite program for listing accredited schools."

The necessity for definite standards, preferably national in scope, is undoubtedly apparent to anyone who has had the privilege of sitting on a State Registration Board; and this need is all the more impelling when considering licensure under the reciprocity clauses in the various state laws. There are, of course, other reasons why the rating of engineering schools is desirable, and while the whole project may seem to some entirely unnecessary, if not undesirable, the fact remains that the state registration laws, directly or implicitly, place on the shoulders of the state boards the duty of preparing a list of engineering schools of recognized standing.

To be of the utmost possible value and weight, such a list of schools should be prepared through the cooperative efforts of the professional organizations most directly concerned. At the time of our last report, the machinery for such action was not in existence. Since then, however, the newly organized Engineers' Council on Professional Development has supplied an admirable set-up for this purpose.

During the past year your committee has given much thought and study to the problem of establishing a suitable set of standards as a basis for rating engineering schools. We have examined the catalogs of nearly all of the schools on the present accredited list of the Council; we have studied the question from the standpoint of the schools as well as that of the licensing boards; we have discussed the matter with a number of leading engineering educators and practising engineers; and we have drawn upon the experience of the legal and medical professions in the rating of schools of law and medicine.

The American Bar Association publishes a list of 81 schools of law that comply with the standards of that association. To gain a place on this list a school must first fill out a 15-page questionnaire containing some 200 questions. These questions are grouped under the following headings:

I. — Organization and Financial Structure.
II.—Faculty.
III.—Physical Equipment.
IV.—Library.
V.—Admission and Graduation of Students.

The Adviser to the Council of the Bar Association states that—"If from the questionnaire it appears that there is at least a nominal compliance with the Standards, a personal inspection of the school is made by the Adviser, whose traveling expenses are paid by the school applying. If more than one school is included on one inspection trip, the amount charged each school is prorated. The Adviser submits at the meeting of the Council next following his inspection a written report upon the school and his inspection of it, and the Council then decides whether or not the school shall be placed on the approved list."

The rating schedule of the Council on Medical Education and Hospitals of the American Medical Association contains four divisions as follows:

I.—Faculty.
II.—Product.
III.—Administration and Supervision.
IV.—Buildings and Equipment.

Twenty-five points are allowed in each division, and schools to attain class A rating must receive 70 points. The Council has always required a personal inspection and report by the permanent secretary as a basis for action.

The only published list of accredited engineering schools, measuring up to a discriminating set of standards, is that prepared by the New York Board of Regents. The rating schedule of the regents contains eight items as follows:

I.—Equipment and Resources.
II.—Summer Field or Shop Work.
III.—Library.
IV.—Faculty.
V.—Curriculum.
VI.—Admission Requirements.
VII.—Length of Course.
VIII.—Degrees.

On this list at present are 112 schools in the United States and two in Canada.

Although it publishes no list of accredited schools, the American Society of Civil Engineers has such a list for its own uses. This list is prepared upon detailed investigation involving the following items:

I.—Admission Requirements.
II.—Graduation Requirements.
III.—Curriculum.
IV.—Degrees.
V.—Faculty.
VI.—Summer Shop and Field Work.
VII.—Age of the Institution.
VIII.—Provision for Inspection.

One of the alternate proposals to a rating schedule which endeavors to establish reasonable standards as regards physical equipment, financial support, and man-power behind the institution, which specifies certain minimum essentials as regards the curriculum without laying down such rigid requirements as completely to destroy the individuality of our engineering colleges, is that of comprehensive examinations. It is contended that the results of these will automatically classify the engineering schools, painlessly perhaps for those who do the clerical work of classifying. Many engineering colleges are experimenting with comprehensive examinations, and unquestionably there is considerable merit in the idea, but that any such scheme can be made the sole basis for establishing an accredited list of schools we have considerable doubt.

In order definitely to focus the opinion of the Council on some concrete scheme of rating, your committee submits the attached Suggested Schedule for Rating Engineering Schools. We do not recommend its adoption at this time because we realize that however important it may be to the Council to have expeditious action, the ramifications of the problem are so great and the import of any decision is likely to be so far-reaching, that final action should only be taken after mature deliberation with all those interests concerned. To this end therefore, we ask for the fullest possible discussion, and we recommend that this schedule be referred to Enginers' Council for Professional Development as a basis for concrete action by that body.

(Dean) PARKER H. DAGGETT, Chairman.
(Prof.) GEORGE J. KELLER
D. B. STEINMAN
Committee on Accredited Schools.

Suggested Schedule for Rating Engineering Schools

1. *Entrance Requirements*—The institution shall demand the satisfactory completion of a 4-year course of 15 units in a secondary school approved by a recognized accrediting agency.

2. *Graduation Requirements* — The institution shall require for graduation the satisfactory completion of a minimum quantitative requirement of 130 semester hours (or the equivalent in term hours, quarter hours, points, or courses), each year to be at least 34 weeks duration, excluding holidays.

3. *Curricula*—The curricula offered by the institution should contain:

(a) Not less than 32 semester hours in the major engineering subject in which a degree is conferred.

(Continued on Page 15)

THE LICENSE LAW SINCE 1920

By Roy G. Finch, Secretary—Engineers' Board of Examiners

(Continued from Previous Issue)

	Registration of Licenses with County Clerks	
No provision.	No provision.	**Every person to whom a license is hereafter issued shall, and every person to whom a license was heretofore issued may, register his license in the office of the Clerk of the County in which he maintains his principal place of business. Section 1453.**
No provision.	No provision.	**The County Clerk shall issue to the licensee a certificate of registration which may be offered as presumptive evidence in all courts of the facts as stated therein. Section 1453.**
	Annual Registration with the Department.	
Certificates of license expire on the 31st day of December annually, and become invalid except that those issued between December 1st and 31st of the year following. Section 1459.	No change. Section 1459.	**Certificates of annual registration expire on the 31st day of December each year. If annual registration with the department is not made before May 1st by a licensee, practice thereafter by the licensee is illegal and his license may be suspended or revoked by the regents. Section 1453.**

(Continued in Next Issue)

Col. John R. Slattery Dies

(Continued from Page 3)

and conscientious official, who with little or no recognition gave his ability and his life to the advancement of the interests of the people of New York."

The New York Times of September 24th said editorially:

"In recalling the political, legal and financial trials and tribulations that had to be overcome before the new subway became a reality, the public may overlook what it owes to the late Colonel John R. Slattery. Although long a respected figure among engineers, he leaped into prominence but a few months ago, when the city was forced to operate the subway itself. The responsibility of organizing and drilling hundreds of trainmen, station agents, dispatchers and operatives could not be entrusted to the ordinary political appointee. It was almost inevitable that Colonel Slattery was made general manager. * * *

"To his new task of general manager Colonel Slattery brought not only an intimate technical knowledge of the subway but a gift of organization rare even among engineers. His natural ability as a leader of men had been cultivated by his army service; for he graduated from the exacting West Point school that had trained Generals Goethals, Black and Jadwin, to mention but three of a long line. Like them he had to display his versatility in building fortifications, erecting bridges, improving rivers and harbors and holding the Mississippi in check. In him the city has lost not only a competent and faithful servant but a commanding figure in its technical development."

When will society awaken to the irony of posthumous recognition of the knowledge, services and devotion of engineers?

"Protection of the Term Engineer"

(Continued from Page 7)

directories, advertisements, professional cards, circulars, letterheads, etc., against the published roster of registered professional engineers, and should address diplomatic communications to apparent offenders, requesting explanation and citing the provisions of the law. Upon failing to secure satisfactory explanation or correction, the organization should report the cases to the proper enforcement officials, requesting official investigation and action. Each case should be followed up, and judicious publicity should be given to significant decisions and to statistics of results secured.

In some cases, a personal call on an offender, acquainting him with the law and explaining the position taken by the profession, will secure the desired correction. In one instance, a prominent Engineer was incensed when he saw the sign "Plumbing Engineer" on a shop-window; he entered the store, asked the proprietor whether he was a registered professional engineer, and forced him to take down the sign under threat of arrest.

Above all, engineering organizations must enlist the active and sympathetic cooperation of the enforcement officials. Where thousands of violations in other professions are investigated and prosecuted, state authorities have scarcely begun to give serious attention to the enforcement of the Engineers' Statute. An adequate force of inspectors and attorneys should be provided. In New York State, for years past, approximately two-thirds of the monies received annually from Engineers' registration fees have been turned over to the State Treasurer as profit to the State. Over two hundred thousand dollars have thus been collected. These fees were never intended to be a source of revenue, and were presumed to meet the cost of administering the law. Such funds should be available for more adequate machinery of investigation and enforcement.

In answer, then, to the question of how our professional designation should be protected, we may set down the four essential parts of a complete program:

1. *Legislation*—Securing the enactment of such further amendments as may prove necessary in our registration laws.
2. *Publicity*—Creating the desired psychological background through a campaign of educational publicity in the newspapers and magazines.
3. *Check-Up*—Direct checking of apparent violations by local units of engineering organizations.
4. *Enforcement*—Enlisting the cooperation of state authorities in investigating and prosecuting violators of the law.

This program is eminently worthwhile. It is most timely and indispensable. It merits our generous investment of time, effort and funds. Other professions have done it. Engineers can do it. *It must be done if Engineering is to take its place as a clearly recognizable, integrated and unified profession.*

The American Engineer reaches the greatest specifying market in the East. This issue showing a 40% increase in advertising lineage marks the influence of this publication as a valuable advertising medium.

PUBLIC WORKS AND THE RECONSTRUCTION FINANCE CORP.

By Gerald W. Knight

A certain town in New Jersey, with a population of less than a thousand, has for some years been confronted with the need of a public water supply. Though the town is in the highland area and is possessed of a charm quite its own and has many attractions for the vacationist, it has not grown very fast. A lack of water has been one of the reasons.

The last several dry seasons having brought about a more or less acute water situation, the good folks of the town petitioned the Mayor and Council to look into the matter of a public water supply. An enterprising citizen, having developed a small parcel of land, having sold a few lots and having a small spring on his property, offered, with certain restrictions, to supply the town with water. Without knowing anything about the water business and with no background of experience in dealing with such matters, the townspeople were encouraged to proceed on that basis. A surveyor was called in, and in due course, having estimated the flowage from the spring, recommended the installation of a distribution system which would take its water from the conveniently located spring source. The prime consideration in the preliminary stage of the enterprise was the size of the investment. The spring supply was handy and recommended itself for reasons of economy.

Such a project, quite the most important public undertaking ever confronted by the citizens, naturally became the cause of much agitation. Some there were in the town who, having been blessed with good well supplies, were "agin" the public improvement. Others who were not so fortunate were for obtaining water at any price; and still others, more farseeing than the rest, thought that if the town were to have a municipal supply the authorities should seek further for an independent source so as not to be beholden to any person who happened to have water for sale. The day came when the ordinance for the public water supply was introduced. The citizens were generally in accord on the matter of need of water, but there was much difference of opinion as to the method to be employed. The ordinance advanced to third reading when a petition of citizens opposed to the plan as laid down in the ordinance finally resulted in a referendum. The popular vote at the referendum defeated the project 3 to 1. In dismay, citizens and officials alike pondered their situation.

A canvass of the citizens by the much perturbed mayor disclosed the fact that the project had been defeated, not because the citizens felt that there was no need for public water supply, but because on the contrary, a strong sentiment had developed against the source, to which there were several important objections and because of a general impression that a heavy public debt would be incurred.

The good mayor, realizing that all of his and his colleagues' work would have to be done over again and on a new basis, patiently began his preparation for it. In the meantime, the citizen who had offered the spring for public use drew in the strings which had been attached to the offer and, with a few of his neighbors, formed a private water supply company, and presently, an application having been made, a charter was granted. Likewise, in due course an application was filed with the State Water Policy Commission for the diversion of enough water to supply the inhabitants of the town.

Though no application had been made by the newly formed water company to the mayor and council for a franchise, the townspeople became aware of what was in the wind and many became greatly agitated, their feeling being that the right to supply water inherently belonged to the citizens first. The council itself became divided. In the midst of this distressing situation, the date for a hearing on the matter of diversion before the State Water Commission was set, to which hearing, on that important day, the divided council and many of the citizens attended. Advocates for the granting of diversion rights to the private company made powerful pleas in behalf of a grant, and the opponents, headed by the mayor, furnished equally cogent reasons for denying it.

Some of the reasons advanced by the advocates of the private company were that the town could not finance it, bonds were not selling, that money was tight and that any other source of supply than that advocated would cost a disproportionately large sum of money. The pleas of both interested groups placed the commission, which had but the one application before it, on the horns of a dilemma. It recognized that there was much logic in the cleam that the right to furnish water to a town's inhabitants inherently belongs to the citizens; that the sentiment in the town was strongly, if not overwhelmingly, in favor of a municipally owned and operated supply and that ultimately if the diversion were granted to the private company the use of the public streets would be involved. These and many other things were brought out at the hearing.

The procedure for the town was at last made clear, and during the legal period subsequent to the hearing required by law for the filing of briefs and to reach a decision, the Mayor and Water Committee proceeded, first, to employ an engineer to investigate the water and economic resources of the town; and, finally, to develop a plan to lay before the citizens by which the town could be suppled with sufficient water to take care of its present and its future needs, together with a method of financing.

The Reconstruction Finance Corporation established by Congress to assist municipalities in just such an emergency and with a fund available for this ideally set up self-liquidating public enterprise was looked into and a solution found. Not only was a solution found for the carrying forward of the utility but a solution also for its financing.

The outstanding feature in the above situation which is based on fact, relates to, and to a large measure hangs upon, the matter of finances. A feeling of utter helplessness possessed the citizens and their representatives in the governing body with respect to money—money wherewith to provide work for its unemployed and money to carry forward an enterprise that in due course would be self-supporting. Many another town is faced with the same situation.

While it is true that the American citizens have had little or no background of experience in dealing with such matters and that the Reconstruction Finance Corporation plans and program are new, out of the maze of organization and necessary red tape, there has emerged a workable, practical plan merely needing intelligent direction in the application for the loan, backed by a bona fide program of public works improvement to provide American towns and cities with the work necessary to lead them out of the depression.

The operations of the Reconstruction Finance Corporation are divided into two fields. One of these fields of Reconstruction Financial assistance has to do with the relief of destitution for which a fund of $300,000,000 has been set up and over which the Governor of the State has jurisdiction as the fiscal agent. The other has to do with the making of loans for financing projects authorized under federal, state or municipal law.

Under the law relating to loans on projects of a self-liquidating character, a detailed statement of the local facts and as to the nature of the improvement is required. Briefly, this may be set down as follows:

1. Name and address of applicant.
2. Name and address of applicant's attorney and engineer.
3. Character of project.
4. Engineering reports on project.
5. Maps, plans, and specifications.
6. Engineer's detailed estimates of cost.
7. Estimates of income and its source. (Charges, assessments or taxes).

(Continued on Page 15)

GENERAL NEWS

ANOTHER NEW CHAPTER

Essex County Organizes

At a meeting held September 12th in Elizabethtown, New York, the Essex County Chapter was launched.

The following transcript of minutes has been received by the New York State Society:

Elizabethtown, N. Y.
September 12, 1932.

A meeting held at the Office of the County Superintendent of Highways for the purpose of organizing an Essex County Chapter of the New York State Society of Professional Engineers.

The following Professional Engineers or Land Surveyors were present:

Edward E. Sheldon, 1 Columbia Pl., Albany, N. Y., who was representing the Albany County Chapter, and who assisted in the organization; George H. James, Elizabethtown, N. Y.; James DeLong, Elizabethtown, N. Y.; A. J. Keating, Elizabethtown, N. Y.; K. C. Raybold, Keeseville, N. Y.; E. R. Eaton, Crown Point, N. Y.; C. H. Simonds, Elizabethtown, N. Y.; E. C. Henry, Port Henry, N. Y.; H. W. Henry, Port Henry, N. Y.

Mr. Sheldon was appointed temporary chairman of the meeting and H. W. Henry temporary secretary.

Motion was made and carried that the Essex County Chapter of the New York State Society of Professional Engineers be organized. The following officers were duly elected for the ensuing year:

A. J. Keating, President, Elizabethtown, N. Y.

E. R. Eaton, Vice-President, Crown Point, N. Y.

H. W. Henry, Secretary and Treasurer, Port Henry, N. Y.

M. Y. Ferris, Ticonderoga, N. Y.; A. M. Cummings, Port Henry, N. Y.; K. C. Raybold, Keeseville, N. Y.; C. H. Simonds, Elizabethtown, N. Y., were elected Directors.

Motion was made and carried that the Constitution of the Albany County Chapter of the New York State Society be hereby adopted with such minor changes as the officers may deem necessary to fit our local conditions.

Motion made and carried that the present officers and directors be and are hereby appointed as members of the membership, publicity, ethics and practice, and law committees.

Mr. Sheldon was extended a vote of thanks for assisting in the organization.

The Secretary was instructed to mail copy of minutes to Dr. D. B. Steinman, New York State Society of Professional Engineers, Grand Central Terminal, New York City, and request charter.

The Secretary was instructed to mail news item of the meeting to the following newspapers: Lake Placid News, Ticonderoga Sentinel, Essex County News, Glens Falls Times and Plattsburgh Daily Republican.

F. X. Bode, Albany, N. Y., George Zimmerman, Utica, N. Y., and J. C. Watts, Troy, N. Y., attended the meeting.

Thanks were extended to Mr. Bode for his interest in instigating and assisting in the formation of this chapter. Meeting adjourned.

H. W. HENRY, Secretary.

The Society expresses appreciation to the Albany Chapter and to the Chairman of the Membership Committee for the splendid missionary work performed.

Congratulations and best wishes are extended to the new Chapter.

* * *

15-POINT PROGRAM FOR THE ENGINEERING PROFESSION

By D. B. Steinman

(1) Selection and enrollment limitation of engineering students.

(2) Cultural as well as technical education required.

(3) Highest standards for accrediting engineering schools.

(4) Guided training and experience required after graduation.

(5) Highest qualification standards for admission to the Profession.

(6) Practice legally restricted to those fully qualified and lawfully admitted.

(7) Use of designation "Engineer" legally restricted.

(8) Engineering recognized as *one* profession, legally indivisible.

(9) Unification of engineering organizations.

(10) All Engineers united in one professional brotherhood.

(11) Free services and fee competition completely eliminated.

(12) High standards of compensation for engineering services.

(13) Broadest rights of practice maintained against any attempt at restriction.

(14) Advancing the Profession in public understanding, recognition and esteem.

(15) Engineers in public office, public councils, and the highest executive and administrative positions.

SIDELIGHTS OF THE N. C. S. B. E. E. CONVENTION

By An Observer

T. Keith Legare and Col. Hugh A. Kelly of the National Council were worth the $1.50 plus tip that was exacted for the luncheon on Thursday.

Calvin E. Bentley, 76 years young, came all the way from Jamestown, N. Y., to pay his respects to Dr. Steinman and to attend the Convention sessions.

George Seabury, Calvin Rice and other officials of the national societies were interested attendants during the Convention. Mr. Seabury, always anxious to be of service, extended courtesies to the Arrangement Committee and to the visitors and remained to commend the dinner, the speakers and the music.

Admiral Harris, President Steinman and Julius Henry Cohen accompanied to the Hotel by their commanding officers were separated from them during the dinner by skillful manoeuvering upon the part of the committee.

The presence of a number of the fair sex did not seem to embarrass any of the speakers, except the toastmaster, who in a moment of lapsing stated that the dancing would continue before it had even begun.

The famous remark attributed to one Carolina Governor whilst addressing his colleague from the sister State, has its counterpart when T. Keith Legare of South Carolina and Dean Daggett of North Carolina and other parts meet. Such compliments as are exchanged indicate that the Governors had in mind a means for keeping the peace.

L. G. Nieman, Past President of the Brooklyn Engineers' Club, was a most excellent host to the occupants of President Steinman's suite. He and George Dorfman, Secretary of the Club, remained until every one had been attended to and then saw one another home.

I. W. Conway, Frank Perinne, Andrew Johnson, Harry Garretson and the rest of the Queens group, including several charming ladies, deserve the thanks of the Committee for the splendid showing made by the active Chapter they represented.

Connecticut's representation was an inspiration to those present. The new Architects and Engineers Conference is in able hands.

The dignity of New Jersey was maintaned in the person of Mr. A. Noack. The Association and its sister organization of New York have so much in common that frequent contacts would prove advantageous to both.

The presence of H. A. Kidder, J. L. Lawrence, J. L. Waddell, V. T. Boughton and others from the National Societies was a testimonial to the universal regard in which President Steinman is held.

The addresses of all the speakers were taken verbatim and will be printed in the proceedings of the Convention. This is fortunate as the same were of unusual merit. Too bad the oratory, the earnestness and the scholarly presentation cannot be reproduced at the same time. They were edifying.

The visiting engineers were guests of the City of New York on a delightful sightseeing trip aboard the steamer, Macon. The courtesy of the Captain, Quartermaster and crew were the subject of commendation and did much to enhance the visitors' opinions of New York. Thanks are due to Commissioner Albert Goldman of the Department of Plant and Structures.

JOHN R. FREEMAN PASSES
Had Distinguished Career

The world has lost a great engineer and scientist and the nation an outstanding citizen in John R. Freeman who died at his home in Providence, R. I., on October 6th.

On the occasion of a recent testimonial dinner President Hoover stated that "Mr. Freeman's great technical achievements in many lands were matched by his career of public service."

Mr. Freeman was a member of practically every recognized national engineering society and had served as an officer or director in many of them. He contributed much to the literature of engineering and founded or promoted scholarships and agencies for scientific research.

The profession mourns the loss of one of its luminaries.

* * *

CONNECTICUT CONFERENCE APPROVED
Architects Affiliate

The Stamford Advocate of September 22, 1932, contains the following item of interest:

A. I. A. GIVES ITS APPROVAL TO C. E. A.

After considerable negotiations between Willard S. Conlon, president of the Connecticut Conference for Registration of Engineers and Architects, and Harold H. Davis, president of the Connecticut Chapter of the American Institute of Architects, a meeting of the executive committees of both organizations was held yesterday at a dinner which took place at the Brooklawn Country Club, Bridgeport.

Present at the meeting, representing the American Institute of Architects, were H. H. Davis, president; Mr. Caldwell, Mr. Chase, and others who totalled eight members.

The Connecticut Conference for Registration of Engineers and Architects was represented by an executive committee consisting of ten members. The delegation was headed by Willard S. Conlon, president, and included R. L. Hedlander, L. H. Coggins, J. W. Bailey, all of Greenwich, and N. E. Emmens, of Stamford, these gentlemen being the architectural group. The engineers were represented by J. F. Cappabianca, R. E. Shepherd, E. Irving Rudd, chief engineer of the Public Utilities Commission, all of Stamford, and Mr. Shannon, assistant manager of public works of Bridgeport. The Connecticut Society of Civil Engineers was represented by its secretary H. J. Tippett.

As a result of this conference, the executive committee of the A. I. A. advised Mr. Conlon, through the president, Mr. Davis, that the committee approved of the Conference of Engineers and Architects for Registration and would recommend to its members at their next meeting of the American Institute of Architects that they immediately become members of the Connecticut Conference at which time the executive committee of the A. I. A. would appoint two members on the board of directors of the Connecticut Conference for Registration of Engineers and Architects.

COMMENT: The activities in Connecticut indicate the desirability and feasibility of state organizations throughout the country.

* * *

RELATIVE EDUCATION OF PROFESSIONAL GROUPS
By D. B. Steinman

President, N. Y. State Society of Professional Engineers
Past President, American Association of Engineers

In the last two editions of "Who's Who in America," there is presented an interesting study of educational and sociological statistics, including a comparison of the educational preparation of the different vocational groups. This statistical survey, covering the 3,931 new sketches appearing in "Who's Who" for 1928-1929, shows the following percentages of college graduates in the respective professions:

Classification	Percentage of College Graduates
Physicians	100
Educators	98
Scientists	93
Clergymen	91
Engineers	90
Lawyers	89
Public Officials	82
Manufacturers	82
Business Men	78
Publishers	77
Bankers	76
Editors	76
Writers	73
Architects	68
Artists	59

The foregoing figures should be considered in connection with the statement in the U. S. Census that only 4.55 percent of the population of the United States above the age of 21 is college trained.

It is significant to note that Engineering ranks high among the learned professions; 90 percent of the Engineers listed are college graduates. With recent developments in registration requirements, Engineering will rapidly approach the high mark set by the Medical Profession, with 100 percent college graduates.

* * *

AN INDEX OF THE ENGINEERS' IMPORTANCE
How New York Officials Rate Him

Under a recent order of the Mayor of New York 128 city owned automobiles assigned to various officials were retired or transferred to a central operating station. Cadillacs, Packards, Pierce Arrows, Lincolns and even a Deusenberg were amongst the perquisites of various officials, major and minor.

To be deprived of these symbols of office is perhaps a come down in dignity for any official, but think of the fall of the City's directing engineering officer, the Chief Engineer of the Board of Estimate and Apportionment —he has lost his Ford Sedan.

BAR EXAMINATION QUESTION
Asked in Detroit

From Mr. Geo. C. Molloy of Bronx Chapter comes the following novel item:

A train is operated by three (3) men (Smith, Robinson, Jones)

They are—Fireman, Engineer and Brakeman but not respectively.

On the train are three (3) business men (Mr. Smith, Mr. Robinson, Mr. Jones).

1. Mr. Robinson lives in Detroit.
2. The Brakeman lives ½ way between Chicago and Detroit.
3. Mr. Jones earns exactly $2,000 per year.
4. Smith beat the Fireman at billiards.
5. The Brakeman's nearest neighbor, one of the passengers, earns exactly three times as much as the Brakeman who earns $1,000 per year.
6. The passenger whose name is the same as the Brakeman lives in Chicago.

Who is the Engineer?

Send your replies to the Editor, but do not hold him responsible for such use of the term engineer.

* * *

COUNSEL TO ENGINEERS
Looking Toward the Future

A recent issue of the Public Works Magazine contains the following:

Getting Ahead in Engineering

"The Health Department of Jefferson County, Birmingham, Alabama, gives weekly talks on health and health factors from the local radio station. These talks are prepared by an engineer of that department, and cover a variety of community and personal health problems. Not only are they of value in showing other engineers how to prepare readable and interesting material, but they convey facts in a most pleasing and painless fashion.

"But our purpose is not to urge our readers to write for copies of these talks, even those on such topics as 'Drinking Water,' 'The Fly,' 'Malaria' and others equally interesting (though it would be well worth while to do so), but to point out that the engineer of today must be more than a strictly technical man. The engineers who have suffered most during the past few years of shift and change have been those who held most strictly to the technical side of engineering—draftsman, designer, construction man, etc. The men engaged in the administrative and management side of engineering have generally been more fortunate, or perhaps less unfortunate.

"In the first six to ten years of his work, the engineer can get his necessary basic technical and construction experience, and after that time he ought to have pretty well in mind his plans for the future, and should aim at a position which will allow him to use his broader talents, reinforced by his engineering training and experience. If he does that, he's much more liable to be 'sitting pretty' when another 'reconstruction period' comes along."

REPRESENTATION FOR QUEENS

By George H. Bruns

"No issue exceeds that of non-representation. The very foundations of our Republic are laid on that firm basis.

"The founders, indicting an indifferent King, declared 'he has refused to pass laws for the accommodation of large districts of people unless these people would relinquish the right of representation in the Legislature, a right of inestimable value to them.'"

The above is a quotation from an excellent pamphlet on the subject of adequate representation in Congress for the Borough and County of Queens. The author is a director of Queens Chapter and Chairman of its Publicity Committee.

For details one is referred to Mr. Bruns or to the Long Island Daily Press of June 6, 1932.

* * *

A REMINISCENCE OF THE GREAT EASTERN

How an Engineer Brought Her to Port and Collected

A recent issue of the Trenton, N. J. State Journal contains an interesting account of an episode, long since forgotten connected with the first of the great Atlantic Leviathans. It is worth reprinting.

"Salvage in shipping annals offer a variety almost as great as the number of vessels involved in them. A decision setting a precedent for an award to a passenger of a liner who was instrumental in saving her at sea is on record in an issue involving the historic steamship, Great Eastern, which was disabled at sea in her first year of service.

Two days out from Liverpool on the way to New York in September, 1861, the Great Eastern ran into a violent gale and her rudder post was twisted off. The liner floundered at the mercy of the waves for two days while her crew labored unsuccessfully to repair the damage. Finally one of the passengers, Hamilton E. Towle, an American civil engineer, devised and directed the installing of an emergency steering apparatus which enabled the ship to continue her voyage.

In New York the Cunard Line, the owners of the steamship, protested Mr. Towle's demand for reward for his service. Mr. Towle countered by bringing action for salvage in the United States District Court and attaching the Great Eastern in the harbor. She was unable to sail until the Cunard Line had posted a large bond.

The case was pending for more than three years before Mr. Towle received a verdict giving him $15,000. Judge Shipman, in the decision rendered November 12, 1864, offered an extensive review of the laws of salvage, which attracted the attention of maritime interest in this country and Great Britain. The Engineer of London, a leading technical journal, printed it from the professional standpoint in its issue of December 9, 1864, quoting the judge's conclusions."

SCIENCE

Its Processes

One of the truly great problems of tomorrow will be that of preserving the significance of the word science. The present all too frequent invocation of the term, suggests some reflections which will be submitted as recommendations and elaborated on at a future date.

Methods

The immense success of science is due to the way in which it seeks, finds, and tests knowledge. More valuable than any of its discoveries are its effective methods, which make still greater achievements possible.

The true scientific investigator never jumps at conclusions, never takes anything for granted, never considers his judgment better than his information, and never substitutes opinion or long established belief for fact. No matter how plausible a given statement may be or how logical a proposed explanation of it may seem, it must be treated merely as a supposition until it has been proved true by searching tests. Moreover, these tests must be of such kind that other scientists can repeat them, and of such nature that others repeating them will inevitably come to the same conclusion. Only in this manner can a body of dependable scientific knowledge be built up.

Hypothesis

Where exact observation is impossible, a tentative explanation, adopted temporarily as a *working hypothesis*, has often proved of great service. Such working hypotheses have led to some of the most important discoveries in science. Noted examples are: in astronomy, the nebular hypothesis and the planetesimal hypothesis; in biology, the hypothesis of nature selection; and in chemistry and physics, the hypothesis of the electron, atom and molecule. Each of these in its field, has been a fruitful stimulus to scientific research. Not only the scientific method, but also the scientific attitude, is of incalculable value. The true scientist seeks neither to confirm nor to confute ancient dogma or current speculation, except as his proved facts lead him. He endeavors simply to report the truth as the methods and tests of science show it to be. The true scientist never assumes the role of an advocate or special pleader, presenting the strong points on one side while ignoring or belittling like points on the other side.

Science, therefore, is non-partisan and seeks only to establish the facts regardless of whether their pronouncement will be welcomed or resented. It carries on no propaganda for or against a given view, but trusts the truth to make its own way. For this reason, there is nothing regional, racial, or national about science. It is international and universal, making no exceptions for or against any nationality, race, or creed.

Use of Methods

Because of their universal effectiveness, the methods, first conspicuously developed in the natural sciences, are being more and more widely extended to other fields of knowledge.

The most conclusive proof of the value of scientific methods is seen in their successful application to practical affairs.

The tendency of the times is to apply the scientific methods to every important activity of modern life.

* * *

CHAPTER NEWS

NOTICE

"All notices of N. J. chapter meetings and chapter news must be prepared by the secretaries of the chapters and mailed to T. J. Powell, P. O. Box 212 Elizabeth not later than the 7th of each month in order to appear in the current issue of the magazine."

UNION COUNTY CHAPTER

Holds Meeting

Union County Chapter held the first meeting of the season at the Eleanor Restaurant in Elizabeth on Tuesday evening, October 11th.

A motion picture of the Kill Van Kull Bridge was shown through the co-operation of the United States Steel Corporation.

A report was submitted on the discussions pertaining to the engineer at the New Jersey State League of Municipalities meeting held in Asbury Park October 6th.

Wallace J. Higgins was elected to the Board of Directors to fill the vacancy created by the resignation of D. C. MacDougall, now President of the chapter.

President MacDougall appointed the following to the committees as noted:

Nominating committee—Rutledge P. Pray, chairman; Philip S. Crooke, J. H. Groll, George F. Rich, Harry Jurnecka.

Legislative Committee—Wallace J. Higgins, chairman; Nelson L. Pollard, Weston Gavett.

Meetings of Chapter Committee—Harry L. Paff, chairman; Thomas A. Jenkins, John L. Miller.

Unemployment Committee—Albert E. Cooley, chairman; D. J. Haggerty.

Public Relations—Harry Jurnecka, chairman; Raymond Haskell, George F. Rich.

The next meeting of the chapter will be held on Tuesday evening November 15th.

* * *

Business in Government

(Continued from Page 5)

impression upon the men affected and thousands, who in principle may agree with the arguments of the opponents, are actuated and aroused by the seeming inhumanity of those who, having reaped the benefit of their sacrifices, are more concerned with preserving intact their superabundance than in alleviating the misery of their fellow beings. When the rank and file of wage earners who constitute the mass of American citizenry come out under their own leadership and appeal to

(Continued on Page 16)

Engineers' Council for Professional Development

(Continued from Page 4)

tions is to establish a joint agency in the form of a committee to be named "*Engineers' Council for Professional Development.*" The participants are to be the Founder Societies, the S. P. E. E., and the N. C. S. B. E. E., representing respectively the organizational, educational, and legislative interests of the Profession; or, from another viewpoint, the Body of the Profession, the Educators, and the Certifying Agency. Each of the participating societies is to appoint three representatives to make up the membership of the Council, so that a total membership of 18 is anticipated.

The governing objective is to be the enhancement of the status of the Engineer. The immediate objective is to be "the development of a system whereby the progress of the young engineer toward professional standing can be recognized by the public, by the profession, and by the man himself, through the development of technical and other qualifications which will enable him to meet minimum professional standards."

As an immediate program, it is proposed that the Engineers' Council for Professional Development function through four committees:

1. *Committee on Student Selection and Guidance*—for the orientation of young men contemplating preparation for engineering, "in order that only those may seek entrance to the profession who have the quality, aptitude and capacity which are required of its members."

2. *Committee on Engineering Schools*—"to formulate criteria for colleges of engineering, which will insure to their graduates a sound educational back ground for practicing the Engineering Profession."

3. *Committee on Professional Training*—"to develop a program for the further personal and professional development of young engineering graduates."

4. *Committee on Professional Recognition*—to develop and coordinate methods whereby those who have met suitable standards of preparation and training may receive corresponding professional recognition.

The work of these four committees will thus cover, in four respective stages, the entire period of preparation and qualification, from selective guidance of prospective students to final certification into the Profession.

Of these four stages, the last three represent phases of professional development in which the N. C. S. B. E. E. has already taken an active interest; and the fourth stage represents the primary activity of this organization. We have always invited the cooperation of other agencies, and have always held ourselves in readiness to cooperate. We recognize the need of joint action for greater effectiveness, and for harmonization of standards. Now that this opportunity is presented to us to join with the other interested national agencies to develop an amplified and unified program of professional development and certification, it is incumbent upon us to respond promptly in acceptance of the invitation.

Reasons for the Plan:

In order to give the Engineer a clearly recognizable professional status, in order to make Engineering an integrated, unified Profession, and in order that new men shall enter with a consciousness of the Profession as a corporate body, *it is necessary to establish a clear-cut line of demarcation between the Engineer and the non-engineer.* This line of demarcation must clearly and recognizably separate the real Engineer from the pseudo-engineer or the incompetent, the man admitted into the Profession from the student engineer or engineer apprentice, the man legally permitted to practice Engineering from the man legally debarred.

The possession or non-possession of any particular degree from a college of engineering does not at present supply the desired distinguishing criterion, since there are worthy members of the Profession without such degree, and there are possessors of engineering degrees who, through lack of experience, are not yet qualified for responsible practice of the Profession.

Neither does membership in the national engineering societies now supply the desired clear-cut enforceable criterion. The societies unfortunately vary in their admission requirements, and do admit non-engineers to membership. The societies cannot claim to embrace all qualified Engineers, and it is not now practicable to draw an acceptable line between the societies that should be recognized and those that should not.

Registration or licensing offers the only clear-cut, *enforceable* criterion to mark admission into a profession. It provides the criterion with the sanction and force of law. It places the force of the law behind the desire and effort of the Profession to maintain a line of demarcation between the Engineer and the non-engineer. It places the agencies of the law behind the desire and effort of the Profession to maintain high standards of qualification and practice.

If the Engineering Profession in this country is wise enough to profit by the successful example of other professions in this country and of the Engineering Profession in other countries, it will proceed courageously and energetically to do two things:

1. Give its united effort and wisdom to strengthen, improve and unify the Engineers' registration laws now in force in 28 states and extend them to the remaining states.

2. Give its united effort and wisdom to unify and coordinate the standards of all qualifying agencies,—specifically the agencies of education, organization, and registration,—so as to replace chaos with order, conflict with harmony, and indefiniteness with clarity of certification and recognition.

The present situation is unquestionably one of ambiguity and confusion.

There is no logical reason why different engineering schools should give widely varying degrees for the same standard of attainment or identical degrees for different standards of attainment.

There is no logical reason why different national engineering societies should have such diverse admission standards for membership, and such discrepant designations for membership grades of comparable standards.

There is no logical reason why the different States should have differing qualification standards for the licensing of Engineers.

If the combined wisdom of the representatives of these various agencies can agree upon a definition of the Engineer in terms of a qualifying standard of preparation and attainment, there is no logical reason why that self-same standard should not be made the criterion for the conferring of the *professional degree* by the engineering schools, for admission to *membership* in the engineering societies, and for *registration* by State Boards.

It is illogical for the engineering societies to give their stamp of membership to men whom the State Registration Boards cannot admit into the Profession.

It is illogical for the engineering schools to stamp young men as Engineers by giving them the professional degree, when the Profession holds and the law declares that these young men are not yet Engineers and must undergo additional training (through apprenticeship) before they can use the professional degree.

To secure the desired unity of demarcation of the Engineering Profession and the desired clarity of certification into the Profession, two steps are necessary:

1. Formulation of a standard of preparation and qualification for admission into the Profession.

2. Adjustment of existing qualifying requirements to this standard.

The ideal condition will be reached for the Engineering Profession when the same certification standard will qualify the young man *simultaneously* for the professional degree from his engineering school, for membership in the national engineering societies, and for registration in any State. He will thus completely cross the line of demarcation into the Engineering Profession.

The establishment by the Profession of a central certifying agency or bureau, to check and appraise successive stages of training and qualification, will obviously facilitate the operation of the certifying program. It will reduce duplication of examination and appraisal, and will unify acceptance.

The N. C. S. B. E. E. has already taken steps toward this goal. The Engineers' Council for Professional Development is now being formed to provide joint action toward the same objective. Both agencies must cooperate.

We are embarked on a program for improving the status of the Profession. As Engineers seeking an improved finished product of enhanced prestige, we recognize the imperative desirability of:

1. Proper selection of raw material.

2. Proper adjustment and control of the processes of preparation and production.

3. Proper supervision of the finishing operations.

4. Proper specifications for the acceptance of the finished product.

Corresponding to these four desiderata, four committee activities are planned as the immediate program of the E. C. P. D.:

1. *Committee on Student Selection and Guidance*, to guide and counsel young men contemplating engineering training and to exert critical selective influence.

2. *Committee on Engineering Schools*, to establish criteria for acceptance of courses of educational training for engineers.

3. *Committee on Professional Training*, to guide the personal and professional development of recent graduate engineers through the period of apprenticeship.

4. *Committee on Professional Recognition*, to develop a unified method for certifying those who have met the criteria for admission into the Profession.

That such unified program of guidance, preparation and certification is practicable for our Profession is evidenced by the splendid system now in successful operation in British Columbia. Under the provisions of the Engineering Act of that Province, the prospective engineer must pass through four successive stages of qualification, corresponding respectively to approval for admission to the engineering school, registered engineering student, engineering graduate in training, and Registered Professional Engineer. This system of progressive guidance, training, examination, and legal certification is administered under the statute, by the Association of Professional Engineers of the Province of British Columbia. They send lecturers to the high schools to inform the prospective engineering students on the requirements of the Profession, and they publish booklets outlining the successive examinations and stages of qualification.

In the other Canadian Provinces, likewise, the registration acts are administered by the Associations of Professional Engineers. Legal registration and membership in the Associations are made synonymous.

The strength and prestige thus secured by other professions in this country and by the Engineering Profession in other countries are also attainable by us if we adopt a program of united action for these objectives.

The Plan of the Engineers' Council for Professional Development is the most constructive and forward-looking program that has ever been presented for advancing the status and recognition of our Profession.

The question to be answered is not "Why we should do these things," but "Why we have not done them long ago."

Public Works and the Reconstruction Finance Corporation

(Continued from Page 10)

8. Amount of loan desired.
9. Purpose for which loan is sought.
10. What constitutes security for loan.
11. What evidences of indebtedness are to be used (notes, debentures, bonds, etc.).
12. Has the application for loan been legally authorized.
13. Have bonds or other securities been legally authorized.
14. Advise specifically what effort has been made to finance project elsewhere.

There are no stereotype forms to follow in making an application for a loan for a public works improvement which would fall within the second major classification, and generally speaking, it may be said that the Reconstruction Finance Corporation views with greater favor the smaller project in order that there may be a quicker takeup of the slack in unemployment and a wider distribution of construction contracts.

A water supply installation with its subsequent set-up as a business enterprise, including the promulgation of such rates as would make it self-supporting, is, of course, an ideal project for the consideration of the board which administers the Reconstruction Fund. Other projects, many of which may be made self-supporting, easily fall within the purview of the Act. To our readers who are unfamiliar with the self-liquidating clause of the law, it is herewith quoted:

"A project shall be deemed self-liquidating if such project will be made self-supporting and financially solvent, and if the construction cost thereof will be returned within a reasonable period by means of tolls, fees, rents, or other charges, or by such other means (other than by taxation) as may be prescribed by the statutes which provide for the project."

In order to administer the $1,500,000,000 authorized by Congress, the Reconstruction Corporation has organized a legal and engineering staff. According to word coming from Washington, it is planned to have the legal staff examine all applications for loans, so as to pass upon their legality, and then the engineering staff will examine the applications to ascertain their practicability and feasibility. If approval is given by both staffs, it is indicated that a loan will be granted and that a municipality can then proceed with its project.

So far, no set list of projects which will be consider as self-liquidating has been officially announced by the Corporation, but a suggestion has come regarding a course which municipalities may follow if they are considering application for a loan. It is suggested that a municipality proceed with its plans and make application for a loan in the same manner it would make application to a bank for a loan. It should send in a request for a loan to the Reconstruction Finance Corporation and accompany the request with the same data which would normally be submitted to a bank when applying for a long term loan.

Sewers, sewer systems and sewage disposal plants may be brought within the self-liquidating benefits if same are put on a basis similar to that of a water works.

The State of Ohio has devised a method of placing the sewerage system and the sewage treatment works of a municipality upon a favorable basis of a self-supporting enterprise. Through this method the cost of operation and maintenance is apportioned among those benefited in accordance, as near as may be, with the actual benefits received. Municipal water works systems are not a burden upon the municipal tax levy. In like manner Ohio has opened the way for municipalities to conduct their sewerage departments on an equitable and business basis. Industrial plants having large volumes of trade waste pay on the basis of a sliding scale or some other schedule which aims to distribute fairly the costs of the service in proportion to the benefits. In New Jersey we already have some outstanding sewerage works conducted on a self-supporting basis, and it is conceived to be no more necessary to have an act drawn permitting it than it would be to establish by legislation a self-supporting water supply enterprise.

* * *

Requirements for Engineering Schools

(Continued from Page 8)

(b) Not less than 12 semester hours in related branches of engineering.

(c) Not less than 24 semester hours in mathematics and pure science (i. e. physics, chemistry, geology, biology).

(d) Not less than 16 semester hours in mechanics including statics, kinematics, kinetics, hydraulics and strength of materials.

(e) Not less than 9 semester hours in economics and administrative subjects.

(f) Not less than 6 semester hours in English.

4. *Degrees*—The institution shall be one that grants a bachelor's degree, or the equivalent thereof, in a major branch of engineering.

5. *Faculty*—(a) The institution shall have an engineering faculty of at least eight, including three holding full professorial rank.

(b) The majority of its faculty and all instructors in engineering of professorial rank shall have received engineering or scientific degrees, or shall have had engineering experience equivalent thereto.

6. *Teaching Schedules*—(a) The institution shall have so apportioned the teaching load of its staff that the burden on any one member will not be excessive.

(b) In general a teaching schedule in elementary work exceeding 16 load-hours per instructor, or 12 hours in advanced work will be interpreted as endangering educational efficiency.

(c) In evaluating load-hours in laboratory shop or field, two-thirds of the actual scheduled time shall be used.

7. *Size of Classes*—Except for lecture courses, the number of students in a class or section shall not exceed 30, and the number of students in a laboratory section shall not exceed the number for which adequate equipment is available.

8. *Laboratories*—The equipment in

the engineering and scientific laboratories shall be adequate for all of the courses offered, and these facilities shall be kept up by an annual appropriation commensurate with the curriculum, and the value of the equipment.

9. *Shop and Field Work*—Provision shall be made for satisfactory practical summer field or shop work, or the equivalent in course, and there shall be adequate facilities for such work, either within the institution, or by satisfactory arrangements with industries, or with other educational institutions.

10. *Technical Library*—The institution shall have an adequate technical library of not less than 3,000 volumes, excluding public documents, and shall make adequate annual appropriations for the maintenance thereof.

11. *Financial Support*—The minimum annual operating income for an accredited school shall be $50,000, of which $25,000 shall be derived from stable sources other than student fees.

12. *Age of the Institution*—The institution shall have been in continuous operation for a period of five years from the date on which the first degree in engineering has been granted.

13. *Inspection*—No college will be accredited until it has been inspected and reported upon by an agent, or agents, of the National Council of State Boards of Engineering Examiners.

14. *Classification*—Class A. Any institution which completely meets these requirements shall be designated a class A college or school of engineering, provided that prior to September first 1933, it may fail to meet three of them; until September 1934, it may fail to meet two of them; and until September 1935, it may fail to meet one of them.

Class B. Any institution which fails to conform to not more than two of these requirements shall be designated a class B college or school of engineering, provided that until September 1935, it may fail to meet five of them; until September 1936, it may fail to meet four of them; and until September 1937, it may fail to meet three of them.

COMMENT: The report does not specify what the object of rating schools as "Class A" or "Class B" is. An elaboration of the report is desirable.

* * *

Business In Government

(Continued from Page 13)

the veterans the latter's demands will not be so insistent. No one ever hears of a person in want expressing opposition. Invariably it is the smugly complacent and well fed. The spectacle of interests, whose wealth could pay off the national debt of the United States, cancel the Bonus Certificates and still leave them opulent, holding themselves forth as defenders of the exchequer and common weal of the United States is subject matter fit for the pen of a Dean Swift or a Voltaire.

The case of the veteran is paralleled by that of the engineer. One has protected what the other has created. Throughout the past, especially during the 19th and 20th centuries, the engineer has been exploited more than any other element in society. Today he is awakening to a realization of his own impotency in the body politic. And why? Because the present unbalanced economic status of mankind has exacted its greatest toll from the very creators of modern civilization. It has required, not reason, but suffering to convince the engineer that he should participate in the administration of the society for which he, more than any other, must assume responsibility.

To successfully carry out his role he must appreciate that the morals of a nation are those of its people and that honesty in public office proceeds from honesty in the home, in business and in the social relations among men generally. To inspire men with a desire to live and let live is far more beneficial to mankind than to preach such doctrines as—The race to the swift; the survival of the fittest; efficiency is the key to success; competition is the life of trade, caveat emptor and the countless other precepts of business, which in their application suggest the savage instincts of the jungle rather than a society of human beings.

For the good of mankind—let this fetishism of business pass. The *immorality* that accompanies the conduct of public office by political methods is indefensible, but at its worst it is preferable to the *unmorality* that is inseparable from the conduct of so-called efficient and successful business. Let us not forget that mankind embraces the weak and strong alike and that the finest civilization is that in which the strong give succor to and protects the weak.

INGENIEUR.

THE POLYTECHNIC INSTITUTE
— OF BROOKLYN —
Day and Evening Courses Leading to Degrees in
Mechanical Engineering
Electrical Engineering
Chemical Engineering
Civil Engineering
Chemistry
Graduate Courses Leading to Masters Degrees are also offered
For Information and Catalogs, Address:
ERNEST J. STREUBEL, Dean,
99 LIVINGSTON STREET,
BROOKLYN, N. Y.

Statement of Ownership

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of The American Engineer, published monthly at Saugerties, N. Y., for October 1, 1932, State of New York, County of New York, SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Jan C. Vieweg, who having been duly sworn according to law, deposes and says that he is the owner, of The American Engineer and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and regulations, printed on the reverse of this form to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Jan C. Vieweg, 250 Park Avenue, New York.

Business Manager: Robert W. Martin, Jr., 250 Park Avenue, New York, N. Y.

Editor, Arthur V. Sheridan, Bronx Borough Hall, New York.

2. That the owner is: Jan C. Vieweg. Room 2952, Grand Central Terminal Bldg., New York.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bond, mortgages, or other securities, are: NONE.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect in the said stock, bonds, or other securities as so stated by him.

JAN C. VIEWEG,
Publisher.

Sworn to and subscribed before me this 4th Day of October, 1932.

(Seal) MARY E. CLANCY,
Notary Public

AIR REDUCTION SALES COMPANY
LINCOLN BUILDING, 60 E. 42nd STREET, NEW YORK
Airco Oxygen — Acetylene — Airco-D-B-Welding and Cutting Apparatus

• SPECIFY

G-E WIRING MATERIALS

In offering a reliable single source for wiring materials to meet every type of constructional requirement, General Electric invites Professional Engineers to take advantage of the services of its engineering department.

G-E FIBERDUCT

FOR ALL UNDERFLOOR WIRING SYSTEMS

Engineers have found it equally suitable for any type of building where there is a constant demand for the addition or changing of outlets at any point along the duct.

G-E Glyptal Coated Conduit — **G-E Code Wire And Cable**

G-E Fiberduct • **G-E Wiring Devices**

Technical information on all G-E Wiring Material can be obtained by writing Section G-2910, Merchandise Department, General Electric Co., Bridgeport, Conn.

GENERAL ELECTRIC

WIRING MATERIALS

MERCHANDISE DEPT., GENERAL ELECTRIC CO., BRIDGEPORT, CONN.

Standard Conveyor Company

NEW YORK OFFICE

461 Eighth Avenue

GRAVITY AND POWER CONVEYORS

SPECIAL DESIGNED AUTOMATIC CONVEYORS

MANHATTAN COLLEGE

Spuyten Duyvil Parkway

NEW YORK, N. Y.

Conducted by the Christian Brothers

Courses in Engineering, Commerce, Architecture, General Arts and Sciences.

For Information

ADDRESS: THE REGISTRAR

"Don't Experiment"

With Any Untried

VOLUME CONTROL REGISTERS

It has been proven beyond any doubt that the

Highton-McKnight

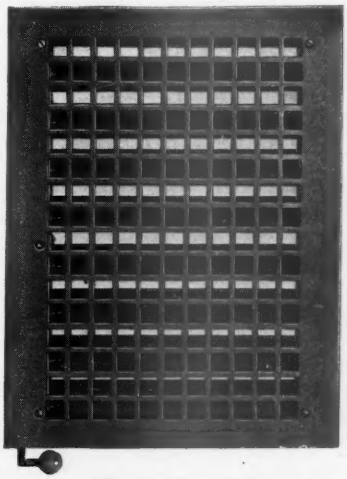
No. 1000 Register

provides positive control of air volume by actual service.

A few of the installations are as follows:

North American Insurance Building, New York City
Bankers Trust Company, New York City
Union League Club, New York City
Empire Building Terminal Barber Shops, New York City
Walker Lispenard Telephone Building, New York City
Rockefeller Center Theatre No. 8, New York City
Dimes Savings Bank Building, Brooklyn, N. Y.
Barnum Hotel, Bridgeport, Conn.
Sears-Roebuck Stores, Chicago, Ill.
Girard College Library, Philadelphia, Pa.
"S. S. Manhattan," New York Shipbuilding Company

A complete list sent upon request.



(PATENT PENDING)

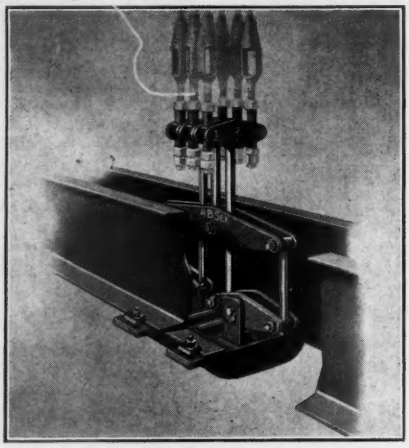
See our catalogue in Sweets
or
Send for Folder No. 38

Hart - Cooley - Highton Co.

NEW BRITAIN, CONN.

NEW YORK CHICAGO
BOSTON PHILADELPHIA
and
Representatives in 35 Principal Cities.

A. B. SEE CABLE EQUALIZER



EQUALIZED CABLES MEAN MORE MILES

Insist that all new elevators or your present traction type elevators about to be recabled, be equipped with A. B. SEE EQUALIZERS.

Installations now burdened with the excessive cost of too frequent recabling will be materially benefitted by equipping all cars with Equalizers.

We shall gladly survey your elevator installation and explain the many advantages of Equalizers.

A. B. SEE ELEVATOR COMPANY, INC.
Main Office - New York
FOUNDED 1883
NEW YORK (Manhattan, Brooklyn, Bronx) DETROIT
JERSEY CITY NEWARK BOSTON PHILADELPHIA
HARTFORD BALTIMORE WASHINGTON

Entrance and Exit... Electrified

The mere touch of the electric switch opens and closes Peelle doors—instantly, quietly, smoothly. Vertical traffic is speeded up, time saved, labor lessened and human safety assured. The control buttons of Peelle electric operators are located in elevator car; on floor side of doors; or for remote direction of doors from a point at shipping entrance or exit. Our engineering department will gladly consult with you . . . or a complete Peelle Door catalog will be sent on request.

THE PEELLE COMPANY
Brooklyn, New York

Boston, Chicago, Cleveland, Philadelphia, Atlanta, San Francisco, Dallas, and 30 other cities

The Doorway of America's Freight Elevator Traffic

See catalogue in SWEET'S

Against What Odds
will you ask your boy to fight?

Will he be one of the 23 in 1000 who will graduate from college?

Of course, you want to give him a break with the boy who has riches—Find out how, through a simple easy plan with a Life Insurance Company, you can be CERTAIN your son will have his chance.

Such a plan arranges that the money will be ready . . . whatever the family finances are . . . whatever happens to you. What does this plan cost? You'll be surprised how little.

You can afford the plan while you cannot afford taking a chance with your boy's future.

Let us tell you how easily it all can be done.

VICTOR MANZI-FÉ
225 BROADWAY
NEW YORK CITY
Telephone
BArclay 7-4500

THE CORE JOINT CONCRETE PIPE COMPANY

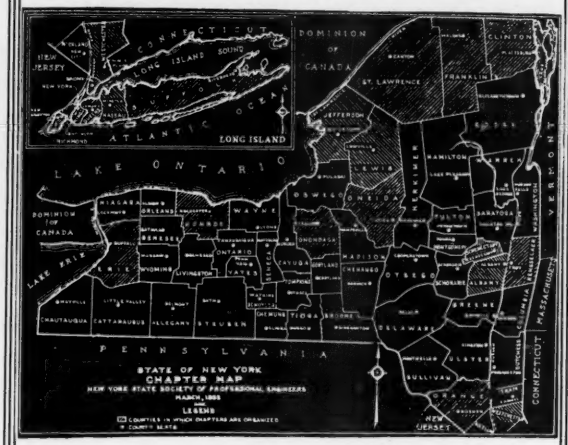
Plain and Reinforced Concrete Pipe
For All Specifications

1400 COMMERCE AVE. BRONX, N. Y. CITY

WEstchester 7-8200

Duplicate Tracings

In Engineering and Drafting work the type of Litho Print Copy derived from an original tracing is a vital item.



Our litho prints are sharp, distinct, having clean cut lines with the finest details. They are unexcelled for permanent recordings. The lines will not rub off.

LITHO PRINT REPRODUCTIONS ON
- TRACING CLOTH (WATERPROOF)
- CELLULOID
- LINAURA CLOTH
- TRACING PAPER
- DRAWING PAPER
- BOND PAPER
- VELLUM CLOTH
- SPECIFICATIONS
- ENLARGING & REDUCING

BLUE PRINTS
PHOTO STATS
MOUNTING
STENCIL COLORING

Write For Free Samples and Prices

TRIANGLE LITHO PRINT CO., INC.
Department TC
20 Spruce St., New York, N. Y.
Please send details regarding your Litho Prints on tracing cloth.
.....
.....

AMERICAN WEDGBELT DRIVES

The ideal long-lived V-Belt Drive for heating and ventilating equipment and general industrial use.

THE AMERICAN PULLEY CO.
4200 WISSAHICKON AVE. PHILADELPHIA

T. J. KENNEDY
President

Telephone
COrtland 7-6385

KENNEDY–RIEGGER DRILLING CO., Inc.
CORE DRILLING CONTRACTORS
DIAMOND DRILL AND WASH BORINGS
30 CHURCH STREET
NEW YORK

F. W. RIEGGER, C. E.
Treasurer
Associate Member A. S. C. E.
N. Y. State License No. 668

ARTHUR McMULLEN COMPANY

HARBOR & RAILROAD CONSTRUCTION
PNEUMATIC FOUNDATIONS

50 Church St. New York
Phone COrtlandt 7-3470

PHILIP J. HEALEY

INCORPORATED

BORINGS

FOR
BRIDGES – BUILDINGS – DOCKS
DAMS–SEWERS–SUBWAYS, Etc.

25 Church St. New York
Phone BArclay 7-2728

DIRECTORY OF ENGINEERS

Licensed Professional Engineers

NEW YORK CITY

JULIUS HARWOOD
P. E. & C. E.
233 Broadway

Holst, J. L.
Consulting Engineer
Investigations, Reports, Design, Specifications, and Supervision of Construction of Buildings, Bridges, Tunnels, and Marine Structures.
New York City,
420 Lexington Avenue

ROBINSON & STEINMAN
Consulting Engineers
H. D. ROBINSON
D. B. STEINMAN
Bridges:
Design, Construction, Strengthening, Investigations, Reports, Advisory Service
117 Liberty St., New York City

STILLMAN & VAN SICLEN Inc.
Chemical and Testing Engineers
Analyses and Tests of Asphalt Paving Materials, Bitumens, Road Oils, Cement and Concrete. Specifications and Plans Drafted. Investigations, Reports and Inspection Service. Core Borings.
227 Front St. New York City
I. Hochstadter, L. P. E. No. 2017
F. Moeller, " No. 9672
S. Newmark, " No. 9769
K. M. Hersten, " No. 9723

NEW YORK CITY

Dennis C. Quinn, C. E.
3352 Bronx Boulevard
Phone: Olinville 2-5733

D. J. LEWIS, JR.
Centrifugal Expert
in
Separating Chemical Products, Crystals, etc.
1176 Woolworth Building,
New York, N. Y.

WEISS & DOWNS, Inc.
Chemical Engineers
50 EAST 41 ST STREET
NEW YORK
(Chemists' Building)

HARRY L. BARNITZ
Consulting Engineer
Industrial Municipal Rural Gases, Liquid and Gaseous Fuels, Sanitation, Water Supply and Diversified Engineering.
Investigations, Reports, Specifications, Design, Supervision of construction, Expert testimony and Counselor to Legal Profession.
215 Bennett Avenue
New York City

A. C. WHITEHEAD,
P. E. & M. E.
Mechanical Engineer
Patents developed. Automatic, Special and Industrial Machinery. Investigations, Reports, Advisory Service.
119-19 89th Avenue,
Richmond Hill, N. Y. City

WHITE PLAINS

THE HALLER TESTING LABORATORIES, Inc.
121 Westmoreland Ave.
White Plains, N. Y.
Engineers — Chemists
Inspectors
MR. E. A. ROBINSON
9242 P. E., L. S.

NEW YORK CITY

H. J. DEUTSCHBEIN COMPANY, Inc.
Empire State Building
New York, N. Y.
Foundations

FRED'K H. ZURMUHLEN, C. E.
Consulting Engineer
Building Design and Construction
205 E. 42d St., New York City

CLYDE R. PLACE
CONSULTING ENGINEER
Graybar Building
Grand Central Terminal
New York City

PELHAM

Gordon E. Ferguson
Licensed Professional Engineer
INVESTIGATIONS
VALUATIONS
410 River Ave., Pelham, N. Y.
Pelham 0665

STATEN ISLAND

North, Allison & Ettlinger
Civil Engineers and Surveyors
36 Richmond Terrace,
Staten Island, N. Y.
Phone: St. George 7-0436

H. W. ORDEMAN
Consulting Engineer
Water Front and Industrial Investigations, Legal Testimony
82 Harbor View Place
Rosebank, S. I., N. Y.

NEW ROCHELLE

R. J. VAN WAGNER,
INCORPORATED
Engineers and Contractors
150 Trenor Drive
New Rochelle
New Rochelle 4572

POUGHKEEPSIE

FRANK S. HOPKINS
Civil Engineer & Surveyor
20 Cannon Street,
Poughkeepsie, N. Y.
Phone 4350

New Jersey

NEWARK

HOWARD INSPECTING AND TESTING LABORATORIES
For materials of construction of pavements, sewers, bridges, concretes; also coal, fuel-oil, etc. Concrete cores drilled. 43 years experience. Write for rates.
Expert investigations including pavement patents.
234 Mt. Prospect Avenue
Newark, N. J.
Branch Brook 2-4873

HOBOKEN

Capt. Ramon B. Harrison
Civil (Construction) Engineer
and
Land Surveyor
514 Fourth Street
Hoboken, N. J.
Hoboken—3-9460

JERSEY CITY

COL. HUGH A KELLY
CIVIL ENGINEER AND ARCHITECT
921 Bergen Avenue
Jersey City, N. J.
Journal Square 2-2100

Arnold Weisselberg, M. E.
Consulting Engineer
Power Plant and Industrial Plant Engineering
Investigation, Research, Test, Design, Supervision
32 Kensington Avenue
Jersey City, N. J.
BErgen 3-7446

R. ROYAL ROANE
CONSULTING ENGINEER
Hydraulic Dredges, Contractors' Equipment, Sand, Gravel and Dredge Pumps.
Design, Supervision, Survey, Reports and Appraisals.
11 Gifford Avenue
Jersey City, N. J.
Phone, DElaware 3-2443
License No. 2463, Mechanical and Hydraulic.
New Jersey State Association.

PLEASE NOTE:

Attention—

Engineers in Private Practice

"The American Engineer" is setting a precedent in Professional Directory.

In keeping with the spirit and principles of The New York State Society and The New Jersey Association of Professional Engineers we are building a Professional Directory for Licensed Professional Engineers and Licensed Land Surveyors.

This is the only Directory in which a License is compulsory.

Every member in private practice should cooperate in making this Directory both comprehensive, representative and useful. Will you?

Members of The New Jersey State Association are urged to send in their listing.

The charge is nominal.

The Public Be Pleased

BOSTON $4.00
Worcester $4.56
Providence $3.00
(Above fares include berth in cabin)

Pier 11, N. R. (foot of Liberty St.)

DAILY and SUNDAYS 6:00 P. M.

Outside staterooms with running water $1.00 up

◆ ◆ ◆

Colonial Line

Telephone BArclay 7-1800
Orchestra and Dancing

A Model of Modern Engineering

ROY MOULTON, Mgr.

HOTEL LINCOLN

44th-45th Streets, 8th Avenue
NEW YORK CITY
"Just a Step from Broadway"

THE Best that Modern Science can offer in hotel accommodations and value. Convenient to everything in New York—theatres, shops, etc.

1400
ROOMS
BATHS
RADIOS

Single
$3.00 - $3.50 - $4.00
Double
$4.00 - $5.00 - $6.00

COURTESY
COMFORT
CONVENIENCE

Booth & Flinn Co.

Inc.

CONTRACTORS

MAIN OFFICE
1942 FORBES STREET
Pittsburgh, Pa.

M. SHAPIRO & SON

Engineers
and
Contractors

1560 Broadway, New York, N. Y

SAMUEL VALENSTEIN
Chief Engineer

DUNHAM DIFFERENTIAL HEATING

C. A. Dunham Co., Chicago

NEW YORK SALES OFFICE

101 Park Avenue

W. W. TIMMIS, Mgr. Phone AShland 4-8515

You will like these two valve advantages

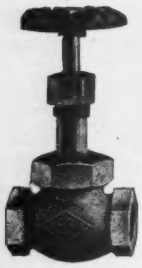


Fig. 106-A

Fig. 106-A, Jenkins Standard Bronze Globe Valve has a one-piece screw-over bonnet and a slip-on stay-on disc holder. ¶Both are advantages you will like. The one-piece bonnett is stronger. It is easier to grip with a wrench. It can be removed and replaced repeatedly without springing. ¶The slip-on stay-on disc holder enables you to change the disc quickly, in a fraction of the time ordinarily required. JENKINS BROS., 80 White St., New York.

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

THE HOTEL
MONTCLAIR
LEXINGTON AVE. 49TH TO 50TH ST. NEW YORK

800 ROOMS

EVERY ROOM WITH BATH

From $3.00 per day

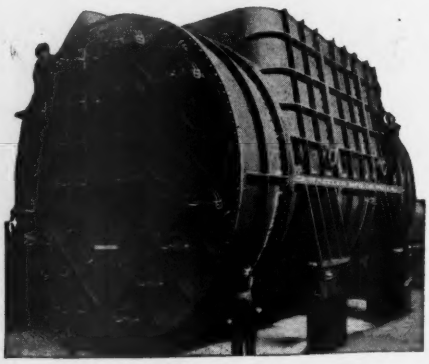
A RADIO IN EVERY ROOM

Short walking distance from Grand Central Terminal and B. & O. Motor Coach Station. Ten minutes by taxi from Pennsylvania Sta.

American Home Cooking Served in a Notable Restaurant

OSCAR W. RICHARDS, *Manager*

C. H. WHEELER of



Power Plant Equipment

Surface Condensers and Auxiliaries
Low Level Jet Condensers
Barometric Condensers
Tubejet Vacuum Pumps and Augmenters
Forced and Natural Draft Cooling Towers

C. H. Wheeler Manufacturing Co.
19th ST., LEHIGH & SEDGLEY AVES., PHILA., PA.

PHILADELPHIA

STEEL FLOORING

Write to Kerlow

KERLOW STEEL FLOORING COMPANY
Culver Ave., Jersey City, N.J.

METROPOLITAN SEWER PIPE COMPANY, Inc.

Sewer Pipe, Drain Pipe and Special Fittings for Sewer and Disposal Construction

YARDS

200th STREET AND WEBSTER AVENUE
237th STREET AND BAILEY AVENUE
BRONX, N. Y.

TRANSITS — LEVELS

PLUMB BOBS

RODS — — TAPES

DRAWING INSTRUMENTS

TABLES — — FILES

BLUE PRINTS

SERVING THE ENGINEER SINCE 1885

KOLESCH & CO.

138 FULTON STREET NEW YORK

FRAZER STAYBILIZED STRUCTURAL PAINTS

. . . Rugged, Tenacious, Elastic, Durable

. . . That Level Out Completely

. . . That Make a Dense and Homogeneous Film

Do you know about them? We would like to tell every member of the New York State Society of Professional Engineers just what FRAZER Paints mean in satisfaction and money saved:

FRAZER Structural Paints are always in suspension . . . practically no stirring, no bother, no waste in the bottom. They are different because the usual pigments have been strengthened and the paint made more permanent through adding FRAZER pigment.*

FRAZER Paints have been standardized by some of the greatest railroads and structural fabricators in the United States. In a test conducted by a leading railroad system of leading structural paints, surfaces coated with FRAZER presented an unbroken film after 17 years!

Get these and other interesting facts from our representative. He can quickly point out, in a short interview, how you can save real money and gain in lasting satisfaction from your clients by specifying . . .

FRAZER'S STAYBILIZED STRUCTURAL PAINTS

* The pigment is a decomposed mica of colloidal fineness. It is non-corrosive, not subject to attack by ordinary acids or alkalis, and is unique in structural formation.

FRAZER PAINT COMPANY

DETROIT, MICH.

155 E. 44th St., Commerce Building
NEW YORK, N. Y.